Chapter One
Background and Introduction

A. Background

The Commonwealth of Pennsylvania is continuously working to refine its treatment service delivery systems for substance abusing individuals. Part of this ongoing effort entails improving methods to better assess client impairment, to improve the selection of treatment interventions, to improve the effectiveness of treatment and to better monitor and manage the delivery of care.

Graphically, this process is displayed in Figure 1, where, in the ideal, the client’s level of impairment leads to appropriate treatment services and results in the desired behavioral changes (outcomes):

![Figure 1: Generic Model of Assessment, Treatment and Outcomes](image)

This study addresses several important components of the Commonwealth’s agenda, an agenda which is best understood in its historical context. During the mid to late 1980s, a shift took place in the expectation of the role of state government in Pennsylvania with respect to the oversight of substance use treatment. Significant and increasing sums of public monies emanating from Medicaid, the federal block grants and state appropriations were being allocated to drug and alcohol treatment services. Concomitantly, rapid changes were occurring in the pattern of drug and alcohol service delivery systems. For example, the late 1980s witnessed mandated insurance coverage and a marked increase in managed care, with its emphasis on the case manager as the designator and monitor of treatment type and duration. Certain emerging treatment types, particularly intensive outpatient care, achieved increasing prominence.

Adjusting to these changing conditions, the Commonwealth found that it was expected not only to allocate funds equitably among geographic areas and ensure that funds were spent on eligible services, but also to ensure that each client was adequately assessed and provided with the mix and sequence of services most likely to result in positive outcomes. The Commonwealth’s role as “monitor” expanded. In particular, the Commonwealth assumed more responsibility for ensuring that the public client receive sufficient and appropriate treatment.

These emerging expectations stimulated the Pennsylvania Department of Health and the Pennsylvania Department of Public Welfare to concentrate efforts and attention in such areas as examining the client assessment process and the instrumentation used to evaluate client impairment and need for treatment. Placement criteria have also come under scrutiny.

As the Commonwealth entered these areas, its staff found a plethora of existing assessment instruments; however, these protocols predominately served the clinical need to develop individual treatment plans once a client had been coupled with a service provider. Scant empirical research existed regarding the effectiveness of specific kinds of services for specific client impairments. Such information was deemed critical in providing assistance to matching a client with the optimal combination, intensity, and duration of treatment, rehabilitation and support services.

Beginning in the late 1980s, the Department of Health began facing expectations that it would resolve issues relating to the appropriateness of substance abuse treatment services. A requirement that the Department develop criteria “governing the type, level and length of care or treatment” was specifically included in the Act 152 legislation passed in
1988. The Office of Drug and Alcohol Programs within the Department of Health become involved in several activities to meet these expectations, this study being one of those.

This study examines the ability of treatment services, individually and in combination, to create positive post treatment outcomes, given the client's initial impairments. This is partially accomplished through a standard "pre-post" research design wherein data regarding a client's status (e.g., level of drug use and other critical factors) are collected at the initiation of treatment and compared with similar data collected at subsequent periods. However, it is very important to underscore the fact that the utility of this study extends well beyond a straightforward, summative research which limits itself to measuring the degree of change clients evidence from the time of admission to time of follow-up. Indeed, a unique dimension of this study involves gathering extensive data documenting clients' treatment experiences during the period between treatment entry and the follow-up interviews. The data collection points are displayed in Figure 2.

This design yields extensive information in an area absent from most studies; specifically, documentation of what occurs during the treatment experience. The analysis, therefore, not only compares the pre-treatment conditions of clients with their conditions six and eighteen months after treatment (outcomes), but seeks to understand the contribution to changes in client functioning of various treatment interventions. In this way, the study aims to meet several concrete expectations of the Commonwealth, including:

- Assisting in the identification of salient data to collect during the client assessment process;
- Providing insight and guidance to direct service staff and clinicians in identifying and selecting the most appropriate treatment type(s);
- Laying the groundwork for standardized data collection which will assist the Commonwealth in understanding the statewide, regional and local profiles of client impairment so that existence of appropriate services be better ensured; and,
- Contributing to the new and growing body of evaluative research regarding matching clients to effective services that result in positive outcomes.

This document reports on the findings of the study through the Six-Month Follow-Up Assessment. These findings relate to clients and services but not outcomes. As of this writing, the Eighteen-Month Follow-Up Assessment period is just ending.

![Figure 2: Study Data Collection Points](image)

The Commonwealth of Pennsylvania, through the Office of Drug and Alcohol Programs, Department of Health, categorizes eight different types of treatment: outpatient drug-free; outpatient methadone maintenance; intensive outpatient; non-hospital, residential detoxification; inpatient hospital detoxification; short-term non-hospital residential rehabilitation; long-term non-hospital, residential rehabilitation; and, inpatient hospital rehabilitation. In addition, halfway house care is identified as a component of long-term non-hospital, residential rehabilitation. Due to funding constraints, the study team was not able to include clients in all eight types of treatment. Instead, a sample approach was designed.
to study clients within three different treatment types: outpatient drug-free; intensive outpatient; and, non-hospital, residential rehabilitation (exclusive of halfway houses). At the time of this study’s initiation, the three treatment types were operationally defined by the Commonwealth of Pennsylvania as follows:

**Outpatient Drug-Free**: The provision of counseling, psychiatric, psychological, social and/or other therapies and services, on a regular or pre-determined schedule, typically once or twice per week in sessions lasting up to one hour. The client resides outside of the treatment facility.

**Intensive Outpatient**: The provision of counseling, psychiatric, psychological, social and/or other therapies and services on a planned and regularly scheduled basis, typically three or more times per week in sessions lasting three or more hours at a time. Services include both individual and group oriented activities. The client resides outside of the treatment facility.

- **Non-Hospital, Residential Rehabilitation**: The provision of services as part of an overall treatment program to last at least fourteen but less than thirty consecutive days (short-term) or more than thirty consecutive days (long-term). Treatment generally includes counseling, psychiatric, psychological, social and/or other therapies, and programs may or may not offer educational, vocational, social and other support activities. There are no medical or nursing services available within the facility. The client resides at the treatment facility for the duration of the treatment episode.

These three types of treatment were selected for different reasons. As a result of Pennsylvania’s Act 152 (1988), Non-Hospital, Residential Rehabilitation treatment has only recently been made available to Medicaid recipients. It typically offers treatment of the longest duration. Costs can vary substantially from program to program, but are consistently lower than traditional hospital-based treatment providers (at least on a per day basis). Little research has been conducted regarding the effectiveness of this treatment type with the publicly funded client. In contrast, Outpatient Drug-Free treatment has been documented to be the least costly type of treatment. It is also viewed as the least restrictive and least intensive type of treatment. Intensive Outpatient is a relatively new treatment service, expanding rapidly in the late 1980s and early 1990s. Intensive Outpatient was originally developed to serve a population which was typically employed and unable/unwilling to use residential services. Its popularity, particularly among Health Maintenance Organizations (HMOs) and managed care providers has proliferated in recent years. Again, little empirical research has been conducted regarding the appropriateness and/or effectiveness of this type of treatment with the publicly funded client.

With the passage of Act 152 in December of 1988, the Commonwealth sought to expand the continuum of care available to Medicaid recipients. Prior to this legislation, Medicaid recipients were limited to the treatment types of outpatient drug-free, outpatient methadone maintenance, inpatient hospital detoxification and inpatient hospital rehabilitation. Act 152 expanded Medicaid reimbursement to include non-hospital, residential detoxification and non-hospital, residential rehabilitation (both short and long term). Non-hospital, residential services were first made available through the Health Maintenance Organizations serving Medicaid recipients through capitation agreements with the Office of Medical Assistance Programs (OMAP), Department of Public Welfare. In 1990, the availability of such services was expanded on a demonstration basis in five Single County Authorities (SCAs), the local agencies responsible for the coordination and allocation of Department of Health funds for drug and alcohol prevention, intervention and treatment. The geographic areas represented by these five demonstration sites included: Allegheny County (including Pittsburgh), Armstrong and Indiana Counties, Bucks County, Chester County, and Philadelphia County.

While Act 152 authorized non-hospital services have now been made available on a statewide basis, at the time this research began, such services were only available within these demonstration areas. Given the focus of this study on the publicly funded client, the geographic areas used to recruit participants were initially limited to the counties in Pennsylvania in which non-hospital services were authorized. A sixth study site, Clinton and Lycoming Counties, was added due to its participation in a targeted case management project which allowed access to Act 152 comparable services. It should be noted that specific treatment agencies are not necessarily located within the geographic boundaries

For more information concerning Act 152, please see Evaluation of the Implementation of Pennsylvania’s Act 152 (1988): The Quantitative Findings (Including a reprint of The Qualitative Perspective), Human Organization Science Institute, January 1993. Requests for copies of this report should be directed to: Human Organization Science Institute, Villanova University, 800 Lancaster Avenue, Villanova, Pennsylvania 19085.
served by the Single County Authorities and/or Health Maintenance Organizations. Provider agencies needed to be under contract with one or more of the participating organizations. As the study progressed, treatment facilities in Berks and Delaware Counties were added in order to ensure adequate sample sizes within specific treatment types. Several providers under contract to one or more of the Health Maintenance Organizations providing services to Medicaid recipients under capitation agreements with the Department of Public Welfare were also recruited to ensure necessary numbers of intensive outpatient recipients.

B  Study Design and Activities

The Human Organization Science Institute (HOSI) of Villanova University, previously selected through a competitive bid process to evaluate the implementation and impact of the Act 152 legislation, was asked to expand its scope of work to examine the effectiveness of assessment processes and the relationships between assessment, treatment and outcomes. Three separate but related studies were designed and conducted.

- **Treatment Placement: Understanding the Decision Making Process** (Human Organization Science Institute, December 1993): This qualitative report examines how drug and alcohol practitioners and clinicians make assessment and treatment placement decisions with clients, including an exploration of the factors considered most important to the decision making process;

- **Field Reliability: An Assessment of the Influence of Field Conditions Upon the Reliability of the Addiction Severity Index** (Human Organization Science Institute, December 1993): This quantitative study examines the reliability of a commonly used assessment instrument, the Addiction Severity Index (McLellan et al, 1990), as administered in clinical settings across the Commonwealth of Pennsylvania. As part of the Act 152 demonstration project, participating SCAs were required to administer the Addiction Severity Index to all Medicaid recipients seeking non-hospital services; and,

- **Drug and Alcohol Treatment Effectiveness in Pennsylvania: A Study of Client Impairment, Services and Outcomes with Publicly-Funded Clients** (Human Organization Science Institute, 1996): The report herein. This study uses a pre-post comparison of assessment information, and incorporates interim data regarding clients' service and treatment experiences in an attempt to determine the relationships among assessed impairment, services received, and outcomes derived.

This study called for the use of face-to-face client interviews at the initial and follow-up assessment periods, as well as the use of telephone interviews during interim periods to document treatment/service experiences. As the primary designer and analyst of this study, the HOS Institute of Villanova University, does not specialize in field interviewing, it was determined that the use of a subcontract agency experienced in field interviews was essential for a study of this nature, import and magnitude. One of the most important events of the planning period was the selection of an organization to conduct the client interviews. This is a very specialized function requiring well established skills and experience in instrument design, client locating, study participant recruitment, interviewing, progress monitoring and data management.

The HOS Institute developed and issued a "Request for Proposal" (RFP), inviting selected organizations to submit proposals which were to detail how they would execute the client interview phases of the study, produce required levels of client participation, and conduct data collection and compilation activities. The RFP also requested staffing patterns, agency qualifications, references and cost estimates. After reviewing the candidate proposals and conducting extensive interviews with finalist applicants, the Institute for Survey Research (ISR) of Temple University was selected in June 1992 to be the subcontract agency responsible for client interviews and related activities.

Upon determination of the subcontract agency, attention immediately turned to developing the necessary assessment and client interview instruments and protocols. Numerous existing instruments had been reviewed, with the judgment that none fully met the comprehensive data requirements of this study. Therefore, a team of Villanova University staff and faculty experts, working in conjunction with the staff of the Institute for Survey Research, developed the
Informed Consent Form; Client Locator Information Form; Initial Assessment Interview; Client Treatment Experience Interview; and, Follow-Up Assessment Interview.

The Client Treatment Experience Interview was carefully reviewed to ensure that it reflected the different time periods for administration: two, four and twelve weeks following administration of the Initial Assessment. The Follow-Up Assessment was also reviewed to include language which reflected the six months elapsing from the Initial Assessment and the three months elapsing from the last Client Treatment Experience Interview. When the contract was further amended to include an additional follow-up assessment interview at the point eighteen months after administration of the initial assessment, the Follow-Up Instrument was again reviewed and language modified to reflect the different elapsed time periods.

While the instruments were being developed, project officers from the Pennsylvania Departments of Health and Public Welfare, in concert with HOS Institute and ISR staff were planning means to enlist clients in the study. It was judged best to work closely with selected providers of the three targeted types of treatment. During the Summer of 1992, regional meetings were conducted in the participating geographic locales. Local SCA staff and directors of treatment facilities attended these meetings wherein the project was described and agencies were asked to participate in the study. These meetings provided to be effective forums for exchanging information and refining the client recruitment process. The agencies, overall, were extremely helpful, cooperative and interested in the study.

Participating agencies identified eligible clients based on criteria established by the HOS Institute and ISR. The agencies also provided potential study participants an overview of the study and secured their initial willingness to participate. Agency staff obtained a written consent form allowing them to identify the client to one of ISR's interviewers, who would immediately contact the client. This personal contact by the ISR interviewer had three purposes: to further explain the study; to secure the necessary formal written informed consent of those clients agreeing to participate; and, to complete the initial assessment.

It should be noted that clients entered treatment through the systems typical to their geographic regions. Neither the Hos Institute nor ISR staff exercised any control over the clients' initial referral or admission to a particular treatment type or agency. In fact, clients were not to be interviewed by ISR staff until they had been in treatment between seven and ten days. With limited funds available, and conscious that the study's objective of examining the effects of treatment did not require a study of initial retention in treatment, the state project officers agreed to allow early drop-outs from treatment to be excluded from participation. This strategy served a dual purpose. It assured that the clients participating in the study received some level of treatment services while precluding the possibility that the initial assessment interview would interfere with the first phases of treatment.

In order to ensure appropriate and sufficient inclusion of core client populations, a sampling plan was developed. This plan sought to enroll in the study equivalent representation of the following characteristics:

- female and male clients;
- clients under the age of 30 and clients 30 years of age and older;
- white clients and non-white clients; and,
- clients using only drugs and clients using only alcohol as the primary problem substance.

It was originally thought that the Addiction Severity Index, with certain modifications, could be used as the basis for the assessment interviews. The use of the ASI was mandated in the participating Act 152 demonstration sites, and slated for use as Act 152 services were expanded statewide. However, given careful review of this assessment instrument (as discussed in detail in Chapter Three), it was determined that supplementation of the ASI would be insufficient; hence, the decision to develop a unique instrument drawing upon a variety of validated and reliable dimensions and assessment topics.
It was also determined that only clients receiving public support, funding through either the Single County Authorities or the Commonwealth’s Office of Medical Assistance Programs, would be eligible for participation in the study. Clients with private insurance or private payment arrangements were excluded. The decision to select publicly supported clients was intentional. It was felt that clients receiving Medicaid were fundamentally different from clients who held private insurance or had sufficient funds to pay for treatment. The Medicaid population is generally seen as having fewer supports, fewer basic life skills, and higher degrees of impairment. Further, clients who had been incarcerated, or had been in one of the eight types of treatment (except for detoxification) within ninety days prior to their current admission to treatment were also excluded, as it deemed essential to accurate assessment that clients were not restricted in their behaviors prior to entering treatment. These criteria were established in order to better ascribe treatment effects to the current treatment episode.

This sampling design was not intended to generate a study group of clients that was representative of the statewide population of individuals seeking treatment. Specifically, the sampling design was created to ensure sufficient numbers of publicly-funded clients in each of the core categories listed above to allow for confidence in subsequent statistical analyses.

While the treatment system may be conceptualized as a three box diagram (Figure 1), in actuality the functions of the system are much more complex than this linear model implies. Successful matching of clients with appropriate and effective treatment presupposes that there is adequate measurement of client impairment, appropriate understanding of the treatment interventions, a strong correlation between impairment and effective treatment, and well-defined outcomes. It also presupposes an ability to adequately measure each of these items and their interactions. In addition, there are some practical elements such as funding and bed availability/treatment capacity.

Analyses in this report seek to determine how the treatment placement and treatment experience were related to subsequent changes in client behavior. If adequate associations between these factors emerge, support for the predictive utility of the assessment dimensions in identifying the need for specific treatment interventions emerges. In other words, if frequent combinations of client characteristics, impairment and treatment occur in the presence of positive outcomes, such evidence can be used to guide both placement and treatment decisions.

C The Study Questions

In the interest of scientific relevance and continuity, this project has adapted various aspects of previous, well-designed studies such as the Treatment Outcome Prospective Study (TOPS) utilized by Hubbard et al (1989). It has also built upon the work of McLellan et al (1980, 1990) in their development of the Addiction Severity Index.

The original plan for this study called for the use of the Addiction Severity Index (ASI) as the pre and post measurement instrument. At that time, the ASI was the Commonwealth’s instrument of choice as a standardized drug and alcohol assessment tool. However, as noted, the evaluators determined that information beyond the content of the ASI would be essential to the value and comprehensive nature of this study.

The specific areas to be addressed in this study include:

For which client types are specific treatment types and service combinations most or least effective?

What is the relationship between client characteristics and the quantity and types of treatment received?

• What is the relationship between the quantity and types of treatment received and subsequent behavioral changes (i.e., outcomes)?

• Which assessment dimensions are important factors in making treatment placement and service provision decisions, and what are their relationships to behavioral outcomes?

Ideally, if associations between assessment and outcome emerge, the predictive utility of the assessment dimensions can be determined. Further, the types and intensities of indicated treatment can be better determined. Such findings have the potential to assist, in concrete and pragmatic fashion, the management and delivery of drug and alcohol...
assessment and treatment services

D. Organization of the Report

This report is divided into five chapters, each addressing a specific aspect of the study. This, Chapter One, provides background, introductory and explanatory information which sets the context for the subsequent chapters. The Current Literature, Chapter Two, discusses relevant research regarding the design, implementation and analysis of outcome studies, with particular emphasis on studies related to substance using individuals seeking treatment. The literature review also discusses the basis for the development of the interview protocols. The applied nature of this study and its potential yield for planners and practitioners is also underscored.

Chapter Three, Study Methodology, addresses the operational aspects of this study. Topics discussed include: instrument development, agency recruitment and selection; the sampling plan to determine client eligibility; development of the various interview protocols; interviewer recruitment and training; the experience of interviewers in the field data collection phase of the study; case finding and data collection/verification techniques; data transmittal and preparation; preparation of the analytical data base; and, interview completion rates.

Chapter Four, Descriptive Statistical Profiles, numerically depicts those clients completing the initial assessment interview. The narrative contained in Chapter Four highlights key selected variables for all clients, in total and by type of treatment. This chapter also presents the results of the scaled and indexed variables.

Chapter Five, Relationships Between Initial Assessment Status and Services Received, examines the relationship between client status at the time of the initial assessment interview and the services subsequently received, as documented through the client treatment experience interviews conducted at time periods two, four and twelve weeks following administration of the initial assessment. This chapter also examines the types and levels of services received, either through the primary treatment facility or through other service providers, in relation to the perception of need as indicated by client status at the time of the initial assessment.

In a subsequent report multivariate analyses will be performed to include the data collected during the Eighteen-Month Follow-Up Assessment. Multiple regression and log-linear analyses will be used to attempt to disentangle the numerous factors associated with client outcomes of either a positive or negative nature. Specific dependent (outcome) variables will include changes in substance use, employment, criminal activity, physical and mental health, social networks, and life supports.
A. Introduction

The principal purpose of this chapter is to anchor the research design used in the Study of Client Impairments, Services and Outcomes in the current social science literature. This is a necessary step for clarifying how the present design can address the unresolved questions raised by the current literature and further inform drug and alcohol practitioners and policy makers.

As part of this review, three social science data bases were searched via computer for reports on drug treatment effectiveness: Psychlit, DRUG (a merged drug and alcohol file produced by the University of Minnesota), and the Sociological Abstracts. An overview of these hundreds of studies was inconclusive. There is a lack of scientific consensus on what constitutes effective treatment due, in large part, to incomparability among studies.

The lack of study comparability is confounded further by myriad definitions and categorizations of types of drug and alcohol treatment. Within the definitions of "outpatient" and "residential" treatment, programs may or may not: serve specific populations (e.g., women with children, men); include the principles of "twelve step" recovery; address single substance or multiple substance use issues; and, enroll clients for similar durations of treatment. Even when a standard type of program has been identified and defined for research purposes, there has not been the application of a standard model to assess outcomes. Methodological matters as basic as the appropriate timing of client follow-up and measurement of drug use at the time of follow-up are still unsettled (Wells, Hawkins and Catalanao, 1988a, 1988b).

B. The Client Treatment Matching Literature

On a more specific level, there is a growing collection of research literature regarding the topic of "client placement" or "client-treatment matching". Researchers argue that matching clients manifesting particular characteristics with selected treatment methods enhances treatment effectiveness and improves client outcomes. Such argument is based on the observation that, within the substance using population, wide variations exist in terms of client characteristics, conditions, competencies and symptomatology. The premise is that treatment effectiveness is increased by matching the particular needs of client groups to the specific strengths of the individual treatment approaches. Thus, it is plausible that the limited success in the field of substance use treatment is not primarily explained by client characteristics or by particular treatment types, but rather by poor matching of patients with the appropriate therapeutic approach (U.S. Department of Health and Human Services, 1987, p. 194).

Client matching is not a novel research theme. For many years researchers have been investigating the advantages of different treatments relative to different client types. McLellan et al (1983) conclude that psychopathology is associated with poorer prognosis, indicating that such patients may require more intensive treatment. More recently, Kadden et al (1989) have extended the study of matching psychopathological clients to differential treatment. However, although the investigative theme of "what works best for whom" has been prominent since the 1970s, the utility of this research remains limited because of several constraints, including:

- Generally, these studies reflect small sample sizes thereby limiting external validity;
- Individual studies have rarely incorporated standardized interview protocols in multiple settings;
- Very few studies simultaneously investigate both patient and program characteristics; and,
- Limited progress has been made in measuring treatment variables; client matching research has focused primarily upon client characteristics.

Reviews of the client matching literature conclude that the principal problem is an absence of robust results that are conclusive and generalizable (U.S. Department of Health and Human Services, 1987, 1990, 1993). This study seeks to overcome several of the problems inherent in previous research efforts. First, it is a multi-site study, involving clients in fifty-two treatment facilities in several distinct geographic regions of Pennsylvania. Second, it simultaneously...
concentrates upon client status and treatment and other support services received. Third, it uses comprehensive, uniform instrumentation. Fourth, it seeks to address troubling methodological issues which have flawed many of the prior, smaller scale studies as discussed below.

A recent National Institute on Drug Abuse (NIDA) Research Monograph (Beutler, 1990) stipulates the methodological issues that must be addressed in individual investigations in order to achieve some closure on treatment effectiveness and client-treatment matching: client selection; treatment definition; therapist selection; measurement of treatment processes; measurement of treatment outcomes; and, data analysis.

The HOS Institute chose to build upon, not reinvent, previous research activity. This study has adapted some of the design components of the Treatment Outcome Prospective Study (TOPS). The TOPS report commences by concurring with the above assessment of the state of the literature: Much of the research has been conducted in single sites using specific therapeutic approaches, and the findings cannot be generalized across the broad range of program types and communities. The issues are very complex, requiring careful consideration of a multiplicity of individual characteristics and treatment elements that may contribute to changes in behavior (Hubbard et al., 1989, p. 12).

In a conscious attempt to use a cumulative approach to research, the TOPS team built upon the earlier efforts of the Drug Abuse Reporting Program (DARP), the first comprehensive, nationally based evaluation of drug abuse treatment effectiveness (Hubbard et al., 1989, p. 6). DARP gathered data from fifty-two NIDA-supported agencies for clients in treatment between 1969 and 1974; these data included admission records, in-treatment status records and outcome follow-ups conducted an average of six years after clients' admissions. A series of students of DARP data demonstrated the effectiveness of publicly-funded therapeutic community and methadone maintenance programs (Simpson, 1982). By the time of TOPS, examining clients treated from 1979 to 1981, there had been substantial changes in both the nature of the drug use problem and the treatment system. TOPS incorporated the following features into its research design:

- A longitudinal, prospective cohort of clients: This design facilitates causal inference, a crucial advantage when the central research question concerns treatment as cause and substance use as effect;

- Naturally occurring, non-equivalent comparison groups: Random assignment of clients to treatment groups is methodologically impractical (Babbie, 1986), and the non-equivalent comparison group design strengthens inferences about cause-and-effect attainable from the prospective cohort design (Cook and Campbell, 1979);

- Measurement points before, during and after treatment: The before and after time points represent pre tests and post tests for estimating program-related change; measurements during treatment permit more focused analysis of specific program features associated with the observed pre-post change; and,

- A multivariate analytical model: The intrinsic complexity of the phenomenon under study requires sophisticated analyses to include a host of client characteristics (e.g., demographics, prior treatment) in conjunction with treatment variables (e.g., quantity and types of treatment received). Since the non-equivalent comparison groups by definition include clients with non-equivalent characteristics, these characteristics must be incorporated into statistical models capable of isolating separate influences of change in key dependent (outcome) variables.

In pursuit of the Commonwealth's research objectives, the present study adapts and enhances these broad design features. Several specific design enhancements are best understood through a review of issues emerging in the recent research literature.

Types of Treatment: Despite the profusion of one-shot case studies estimating the effects of particular treatment programs, numerous studies do attempt to compare the effectiveness of different treatment types. Such direct comparisons of different types of treatment have, thus far, been less than conclusive. Comparisons of inpatient versus outpatient programs, for instance, range from showing no significant differences by treatment setting (Harrison, Hoffman and Hollister, 1988, p. 356) to suggesting differences in treatment failure rates at up to 400 percent (Pettinati et al., 1993). Again, the fundamental problem is non-comparability in all six of the methodological criteria stipulated by NIDA which, in combination, yields inconclusive and
Recognizing these deficits, the TOPS research did not use this comparative strategy: Because these client characteristics may be related to treatment outcome and because modality differences are so extreme on many client characteristics, the modalities are in general examined separately in analyses (Hubbard et al., 1989, p. 93, emphasis added).

The present study further enhances this strategy, using a combination of analyses which examine client impairments in relation to the effectiveness of treatment in general, the effectiveness across the treatment types, and statistical models separately specified for each type to examine the unique characteristics of each treatment type. In addition, the present study, through its sampling and analytical strategies, permits a comparison of similar types of clients across all three types of treatment. Further, through the data gathered by the Client Treatment Experience interviews, this study team is able to examine many of the services received by a client, whether the service was provided by the client's identified substance use treatment facility or by other sources of service and assistance. The combination of facility specific and ancillary service delivery offers a much more comprehensive picture and understanding of the total treatment process. The ability to examine client-specific outcomes in relation to assessed levels of need and related service utilization also provides a strong clinical and managerial utility to this report.

Treatment Measurement: It is commonplace in the drug treatment literature to call for better measurement of the content of treatment (Woody, McLellan and Alterman, 1991). Superficial attention to this issue is part of the reason that definitions such as "inpatient" and "outpatient" become artificial comparisons unless the actual treatment differences (quantity and type) are made clear (McLellan et al., 1993). The extensive information generated by the Client Treatment Experience interviews (conducted two, four and twelve weeks after administration of the initial assessment, and as part of the six and eighteen month follow-up assessments) makes an effort to correct this deficiency in previous studies. Measures of both the quantity and types of treatment received, from the primary treatment facility as well as other support and service sources, will be incorporated into the statistical models described below.

Social Networks: One of the most intriguing issues to emerge in the recent drug and alcohol treatment literature concerns the role of social networks, that is, the patterns of interpersonal relationships clients maintain with others and the influence these relationships have on the clients' behaviors. Suggestive findings of the recent research into this area call into question a purely psychodynamic model of the treatment process. Relationship patterns have been statistically linked to drug abuse patterns (Towberman and McDonald, 1993; Richter, Brown and Mott, 1991; Hartmann, Sullivan, and Wolk, 1991), to treatment retention rates (Siddall and Conway, 1988; Condelli and DeLeon, 1993; Hoffman and Miller, 1993), and to treatment outcomes (Myers, Brown and Mott, 1993; Richter, Brown and Mott, 1991; Goehl, Numes and Quitkin, 1993). Based on this newly emerging research, the appearance of the importance of social networks in treatment, relapse prevention and overall behavioral change is quite strong. The current study incorporates extensive measures of social networks and employs these measures as essential variables in the outcome model.

- **Statistical Models**: As can be seen from this literature review, the analytical methodology of this study must be sensitive enough to accommodate large variation within the levels and types of client impairment, flexible enough to allow separate models for each treatment type, expansive enough to incorporate extensive measures of treatment and social networks, and comprehensive enough to include client characteristics suspected to affect client outcomes and known to differ by type of treatment.

Two studies from the recent literature highlight the current study's solution to these requirements. In an article entitled The Effects of Time in Drug Abuse Treatment and Employment on Post-Treatment Drug Use and Criminal Activity (1993), French, Zarkin and Hubbard present a refinement of the TOPS data. The title has been quoted to show the complexity of their research model; treatment effects have been statistically separated from employment effects (known to be linked to positive client outcomes; see Brewinton, Arella and Deren, 1987) to test the effects of the former upon both drug use and criminal activity. Their model sorted out variables (e.g., employment and criminal activity) known to differ by type of treatment, and also allowed the conclusion that treatment effects were greatest for clients in the residential services. The title of their second
article is *The Effects and Intentions to Use Drugs on Post-Treatment Drug Use of Adolescents*. One set of "skills" is social skills which evidenced a statistically significant effect on drug use at twelve-month follow-up for females but not for males. Since social skills are elements of clients' social networks known to differ by gender, this suggests that networks and gender must be jointly related to outcomes to properly model the effect.

The complete study (six month and eighteen month data combined) relies on a variety of techniques for estimating outcomes. Factor analysis separate multiple regression models for each of the treatment types, and log-linear analysis of contingency tables are incorporated into a comprehensive examination. Factor analysis examines the association of variables, seeking commonalities and groups of related impairment indicators, assisting to reduce large amounts of data to more manageable levels. These statistical methods also permit partialling out (holding constant across differences) the numerous background factors associated with impairments and treatment type. This clarifies the direct and indirect effects of treatment. In addition to fulfilling the recommendation of the literature that "multi-method assessment" be used to verify treatment effects (Brecht, Hser and Anglin, 1991), log-linear analysis has certain unique strengths. It can be applied to categorical variables when the measurement assumptions of multiple regression analysis are unmet. Moreover, it offers the flexibility of examining "interaction effects" (i.e., those involving more than two variables). As is suggested in the studies discussed above, drug treatment outcomes may not be linear and additive. Simply stated, and using the preceding example, the quantity of substance use treatment may more powerfully affect unemployed females than it does employed males. Log-linear analysis is designed to identify such differing effects and associations. These statistical findings will be presented in the sequel report to be issued in 1996.

In summary, the design of the research protocol seeks to build upon previous studies, avoiding many of the deficiencies and limitations of such efforts. The purposeful sampling of clients to ensure adequate numbers of clients in a variety of targeted categories, careful documentation of impairments, treatment and services received, understanding of the treatment types, inclusion of the clients' social networks, and powerful statistical tools combine to add strength to the overall research endeavor.
Chapter Three
Study Methodology

A. Background

One goal of this effort is to provide practical guidance to the Pennsylvania Departments of Health and Public Welfare in the development of policies and procedures for managing the appropriate delivery of publicly funded drug and alcohol treatment services.

As part of its implementation of Act 152, the 1988 Pennsylvania legislation allowing the use of Medicaid funds for the purchase of non-hospital, residential drug and alcohol treatment services, the Commonwealth was interested in using a standard assessment and level of care monitoring instrument. The Commonwealth ultimately selected the Addiction Severity Index (McLellan et al., 1980, 1990) for use by the Act 152 demonstration Single County Authority case management offices and subcontracted provider agencies. The Office of Medical Assistance Programs did not place a similar requirement on the Health Maintenance Organizations serving Medicaid clients through capitation agreements, hence, these groups use a variety of standard and internal assessment tools.

At the same time, there was some concern regarding the utility of the ASI as a level of care guide and/or a post-treatment monitoring tool. Other concerns regarding the use of the ASI are discussed below. The Commonwealth, in a partnership between the Department of Health and the Department of Public Welfare, asked the Human Organization Science Institute to conduct a series of studies aimed at assisting the selection, use and policy formation regarding standardized assessment tools.

In developing the Study of Client Impairments, Services and Outcomes, the HOS Institute convened a group of prominent researchers in the fields of drug and alcohol treatment and effectiveness, field survey research, and statistical analysis, as well as senior officials from the Departments of Health and Public Welfare. During the course of this two day meeting, issues related to the use of the Addiction Severity Index, both as a research tool and as a treatment placement guide were debated. Further discussions focused on the design and methodology of client outcome studies and the use of field interviewers as a reliable means of data collection. Subsequent to this two day meeting, additional meetings were held with Thomas McLellan, Ph.D., Veteran’s Administration Drug Treatment Research Unit, University of Pennsylvania, in which many of the specifics of the study, and the use of the Addiction Severity Index in particular, were reviewed in considerable detail. Additional meetings were also held with representatives of the Pennsylvania Departments of Health and Public Welfare. As a result of these discussions it was determined that for study purposes, the Addiction Severity Index, as currently constructed, was not adequate and supplemental information would need to be developed. This supplemental information was to include client locator information for use in follow-up interviews as well as expanded items to explore areas deemed inadequately addressed by the ASI.

B. Instrument Development

Working in tandem with Temple University’s Institute for Survey Research, the HOS Institute, with the assistance of several carefully selected consultants, embarked on an attempt to develop a more comprehensive assessment approach. The team considered the preliminary results of the two HOS Institute studies related to the ASI (Treatment Placement: Understanding the Decision Making Process, 1993, and Field Reliability: An Assessment of the Influence of Field Conditions Upon the Reliability of the Addiction Severity Index, 1993). The team also evaluated both the content and administration procedures employed by almost one hundred standardized and non-standardized assessment instruments. Many of these instruments are publicly available, but privately developed instruments were also reviewed. Ultimately, the team’s recommendation was that the study’s resources would be best spent on the development of an assessment device which would incorporate the best aspects of those instruments reviewed, avoiding, insofar as possible, problems and deficiencies noted in a review of the relevant literature. It was further noted that such an instrument would need to be usable by trained interviewers who were not drug and alcohol clinicians and that the interviews could not require excessive amount of clients’ time. Among the general guidelines followed in the development of the instruments were:
The Initial and Follow-Up Assessment instruments should include a consideration of all ASI areas plus as many additional areas as professional judgment, a review of the relevant literature and time constraints permitted.

The average time for administration of these two instruments was to be approximately ninety (90) minutes. A total of one hundred and twenty (120) minutes was the time allocated to conduct the initial assessment. This included the completion of an Informed Consent Agreement and a Location Information Questionnaire, critical for subsequent client identification and follow-up contact.

- Instruments were to be usable by trained field interviewers who were not experienced drug and alcohol practitioners. The assessments would need to occur in a variety of settings with an absolute minimum of supporting materials and equipment.

Instruments were to specifically address the problems noted by Grissom and Bragg (1991).

Instruments were to be based upon accepted and validated procedures whenever and wherever possible.

Branching question patterns were to be freely employed to accommodate the varied nature of clients to be involved in the study.

The content of the instruments was to be designed to permit repeated-measures, with as few changes in items as possible between the initial and follow-up assessment documents.

As displayed in Figure 2 (page 2), ultimately four distinct instruments were developed by the HOSI/ISR team: the Initial Assessment interview; the Client Treatment Experience interview; the Six-Month Follow-Up Assessment interview; and, the Eighteen Month Follow-Up Assessment interview. These instruments were supplemented by an Informed Consent Agreement and a Client Locator Questionnaire. Additional administrative and management forms were developed by the Institute for Survey Research.

B1. The Initial Assessment

The Initial Assessment is a structured interview protocol containing 143 items, many of which have multiple parts, components or sections. Designed to be administered by a trained but non-clinical interviewer and supported by a manual which contains guidelines and procedures for administering each item, numerous question branches enable the assessment of clients with widely-varying backgrounds and characteristics. Due to the branching feature, no single client responds to all 143 items; the precise number is dependent upon the specific pattern of characteristics embodied by a given client.

Areas of concern which are assessed by the Initial Assessment interview include Lifestyle (items 1-37), Literacy (items 38-49), Medical (items 50-82), Psychiatric (items 83-95), Legal (items 96-112), Substance Abuse (items 113-125), and Treatment History including current Motivation for Treatment (items 126-143).

It should be noted that one of the design features of assessment protocols used in this study is the behavioral nature of the questions. By focusing on specific symptoms, behaviors and actions, the instrument does not rely on the client or the interviewer to interpret or diagnose. For example, the Addiction Severity Index asks "Have you had a significant period (that was not a direct result of drug/alcohol use) in which you have... Experienced severe depression". Such a question requires both the client and the interviewer to interpret the terms "significant", "severe" and "depression".

In the Initial and Follow-Up Assessment instruments, a series of questions focuses on behaviors related to depression, and more clearly defines the time frame: "Please tell me if you have ever experienced these difficulties for a period of two weeks or longer. Do not include times when you were high on drugs or alcohol." Examples of difficulties or symptoms include: "feeling no interest in things", "feeling hopeless about the future", "thinking about committing suicide", and "having trouble falling asleep, staying asleep, waking up too early or sleeping too much."

Table 1 lists those areas contained in the Initial Assessment interview within broad areas of assessment. A count of the number of items within each area indicates that the Initial Assessment interview is a comprehensive research protocol. Many areas receive extensive consideration through multiple branching questions on the Initial Assessment.
Development work on the Initial Assessment instrument began in June 1992. As sections were crafted, drafts were circulated among the HOS Institute study team and project officers from the Pennsylvania Departments of Health and Public Welfare for review and critique. Periodic review sessions were held during which the assessment questions were carefully and thoroughly scrutinized. When all of the sections of the assessment tool had been completed, a final review session examined the continuity of the assessment interview and the comprehensiveness of the entire document.

Simultaneously, complementary study materials such as the Informed Consent Agreement, Location Information Questionnaire, and numerous other forms and documents needed for the administrative aspects of the research effort were developed.

In early August 1992, the HOS Institute and the Institute for Survey Research conducted a field test of the draft Initial Assessment. This field test involved two experienced ISR interviewers completing Initial Assessment interviews with a total of six volunteer clients at two local treatment facilities. The length of the interview and general administration requirements were within desired limits. Several minor item revisions were incorporated into the draft as a result of the field test. In late August, the instrument was approved for use after review by HOS Institute, ISR and Commonwealth representatives.

### Table 1

<table>
<thead>
<tr>
<th>IA Reference Area</th>
<th>Assessment Area</th>
</tr>
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<tbody>
<tr>
<td>Lifestyle</td>
<td>Employment</td>
</tr>
<tr>
<td></td>
<td>Daily Activities</td>
</tr>
<tr>
<td></td>
<td>Income Sources</td>
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<td></td>
<td>Usual Residence</td>
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<tr>
<td></td>
<td>Relationships</td>
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<td></td>
<td>Issues-Children</td>
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<tr>
<td></td>
<td>Issues-Other Family Members</td>
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<tr>
<td>Literacy</td>
<td>Education Level</td>
</tr>
<tr>
<td></td>
<td>Education History</td>
</tr>
<tr>
<td></td>
<td>Current Education</td>
</tr>
<tr>
<td></td>
<td>Literacy Level</td>
</tr>
<tr>
<td></td>
<td>Reading Ability</td>
</tr>
<tr>
<td></td>
<td>Cognitive Function</td>
</tr>
<tr>
<td>Medical</td>
<td>Medical Problems/Symptoms</td>
</tr>
<tr>
<td></td>
<td>Issues-Reproductive</td>
</tr>
<tr>
<td></td>
<td>Hospitalization</td>
</tr>
<tr>
<td></td>
<td>HIV Status</td>
</tr>
<tr>
<td></td>
<td>HIV Risk Behaviors</td>
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<tr>
<td></td>
<td>Medications-Physical</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>Psychiatric Symptoms</td>
</tr>
<tr>
<td></td>
<td>Abuse-Physical</td>
</tr>
<tr>
<td></td>
<td>Abuse-Emotional</td>
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<tr>
<td></td>
<td>Abuse-Sexual</td>
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<tr>
<td></td>
<td>Prior Mental Health Treatment</td>
</tr>
<tr>
<td></td>
<td>Medications-Psychiatric</td>
</tr>
<tr>
<td>Legal</td>
<td>Legal Issues for Treatment</td>
</tr>
<tr>
<td></td>
<td>Illegal Activities</td>
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<tr>
<td></td>
<td>Criminal Charges</td>
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<tr>
<td></td>
<td>Arrests</td>
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<tr>
<td></td>
<td>Convictions</td>
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<td></td>
<td>Incarcerations</td>
</tr>
<tr>
<td>Substance Use</td>
<td>Substance Use History</td>
</tr>
<tr>
<td></td>
<td>Abstinence History</td>
</tr>
<tr>
<td></td>
<td>Treatment History</td>
</tr>
<tr>
<td>Motivation</td>
<td>Treatment Motivation</td>
</tr>
</tbody>
</table>
B2. The Client Treatment Experience

The Initial Assessment was intended to provide a detailed description of the client upon entry into treatment. The Client Treatment Experience interview (CTE) was designed to examine client activities during a period following the administration of the Initial Assessment. Specifically, the CTE was designed to obtain information concerning treatment experiences, other significant events in the life of the client, perceived met and unmet needs, and related concerns arising during the three months following the Initial Assessment.

The CTEs were to be administered via telephone calls made to the clients at intervals of two, four and twelve weeks following completion of the Initial Assessment interview. The CTE required approximately ten minutes per interview. To provide some element of flexibility to accommodate weekends, holidays, broken appointments, illness, and other mitigating factors, a "window of opportunity" was defined for each CTE administration (see Table 2). In-person interviews rather than telephone calls were allowed and did occur in a small number of cases.

### Table 2

<table>
<thead>
<tr>
<th>CTE Interview</th>
<th>Earliest Time Allowed</th>
<th>Latest Time Allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTE1: 2 Weeks</td>
<td>13 Days Post IA</td>
<td>21 Days Post IA</td>
</tr>
<tr>
<td>CTE2: 4 Weeks</td>
<td>26 Days Post IA</td>
<td>42 Days Post IA</td>
</tr>
<tr>
<td>CTE3: 12 Weeks</td>
<td>77 Days Post IA</td>
<td>105 Days Post IA</td>
</tr>
</tbody>
</table>

Just as the Initial Assessment instrument was heavily influenced by the ASI, the Client Treatment Experience interview was influenced by an earlier instrument, the Treatment Services Review (McLellan et al, 1989). Likewise, in relation to the Initial Assessment instrument, the CTE focused on behaviors and actions taken and events encountered by the client, to eliminate, to the fullest extent possible, interpretation and/or judgment by either the client or the interviewer.

The Client Treatment Experience interview was designed to be administered in basically identical form at each assessment period. Minor changes, to accommodate differences due to specific time periods, were incorporated in wording or through question branching.

Attention was focused on whether the study participant was still in treatment, a documentation of services received (from any source) and how the services were accessed, client perception of continuing problems and any assistance received, and inquiries concerning aspects of the treatment experience that were perceived as most and least helpful. Questions also focused on significant events in the client's life and, if they had left treatment, under what circumstances and for what reasons did this occur.

One of the principal differences between the Treatment Service Review (TSR) and the CTE is the TSR's emphasis on clinical problems and clinical interventions on a weekly basis, either from the client's treatment program, or from another source. The CTE allows the identification of movement to different programs, as well as the documentation of the frequency and source of a large number of clinical (medical and psychiatric/psychological) as well as social, legal, family employment and educational services, regardless of the source of such services. The direct assessment of unmet needs as well as sources of satisfaction and dissatisfaction with treatment, are important aspects of CTE data.

The development of the Client Treatment Experience paralleled the development of the Initial Assessment interview and culminated in the field test described above. Minor revisions were made to the instrument on the basis of the field test before the CTE was approved for use.

B3. The Six Month Follow-Up Assessment

The Six Month Follow-Up Assessment instrument was designed to obtain data comparable to that which was
collected during the Initial Assessment and the Client Treatment Experience interviews. The Follow-Up Assessment instrument combined the Initial Assessment and Client Treatment Experience protocols, retaining the majority of items and questions, while eliminating certain items which were deemed duplicative. Modifications of wording were held to a minimum as were changes in the order of the interview protocol. Language was changed to reflect differing time periods. A number of questions were determined to be unnecessary to the Follow-Up protocol (e.g., age at first use) and were deleted. A number of questions, relating to recent treatment and substance use were incorporated into the Follow-Up Assessment.

The Six Month Follow-Up Assessment, given the modifications, additions and deletions, required slightly less time to complete than did the Initial Assessment. The average time required for administration of the Initial Assessment was ninety-one (91) minutes. The average time required to complete the Follow-Up Assessment was eighty-four (84) minutes.

Similar revisions were made to the Eighteen Month Follow-Up Assessment interview protocol. Changes to this instrument will be discussed in the related analytical report to be issued in 1996.

B4. Instrument Documentation

For each of the three interview protocols, the Initial Assessment, the Client Treatment Experience and the Six-Month Follow-Up Assessment, HOS Institute and ISR representatives developed documentation for the related instruments. This documentation provided item by item instructions, including suggested prompts and interviewing techniques, to help guide the interviewers.

These documentation manuals were used during the training of the interviewers, and were retained by the interviewers for future reference. In addition to providing detailed instructions, the manuals contained codes for some of the open-ended questions, definitions of certain terms, and administrative information regarding submitting completed interview forms and related paperwork.

C. Site Selection

The overriding factor in the initial determination of geographic areas from which to recruit study participants was the availability of the selected study treatment types (outpatient drug-free, intensive outpatient and non-hospital residential rehabilitation) for publicly-funded clients. At the time the Study of Client Impairments, Services and Outcomes was scheduled to begin, it was only through the Act 152 demonstration SCAs or the HMO capitation plans that Medicaid clients could access intensive outpatient or non-hospital rehabilitation treatment. Hence, the decision was made to work with the five Act 152 demonstration SCAs to recruit treatment facilities.

The study team developed materials describing the study, the role of treatment facilities in client recruitment and the general criteria for client selection to meet the study’s sample design. These materials were distributed to the SCAs and subsequently to the appropriate treatment facilities under contract to the various SCAs. Regional meetings were hosted by the SCAs and attended by HOS Institute representatives.

For a variety of reasons, not all agencies chose to participate in the study. In several instances, formal application to the agencies’ Institutional Review Boards (IRB) was required to gain approval of both the study protocol and the agency’s participation in the study. In these cases, HOS Institute staff assisted in the process of developing complete IRB applications. Agencies agreeing to participate in the study were asked to complete a Facilities Description Form which gathered information regarding agency characteristics, caseload volume and make-up. The Facilities Description Form was the basis for the client selection sampling plan described in Section D, below.

A subsequent comparison of the Uniform Data Collection System (UDCS) report of admissions provided by the Office of Drug and Alcohol Programs, Pennsylvania Department of Health, and the sampling plan developed on the basis of the Facility Description Forms showed actual client admissions to be substantially and systematically lower than claimed on the Facility Description Forms.

Recruitment of additional agencies outside of the pilot SCAs was needed to ensure sufficient client representation in all of the treatment types. Agencies in several counties were approached to increase the number of participating
intensive outpatient programs. The study team also recruited several providers of intensive outpatient services associated with Health Maintenance Organizations providing services to Medicaid clients through capitation agreements with the Pennsylvania Department of Public Welfare. Agencies under contract with the SCA for the Clinton/Lycoming area were also included in the study. Overall, fifty-two treatment programs participated in the recruitment of clients for this study.

D Sampling Plan

The goal of the sampling plan was to recruit three hundred clients from each of the three treatment types, for a total sample size of nine hundred individuals. In outpatient drug-free, a total of 327 individuals completed Initial Assessment interviews. In non-hospital rehabilitation, 325 individuals completed Initial Assessment interviews. After repeated attempts to locate and recruit clients participating in intensive outpatient services, it was decided to end recruitment after a total of 184 individuals had completed the Initial Assessment interview, below the desired numbers, but sufficient for analytical purposes. It should be noted that intensive outpatient programs for substance using individuals are relatively new in Pennsylvania, are not available in all regions of the Commonwealth, and funding for such treatment may be inconsistent from area to area. The most common purchasers of intensive outpatient services are the Health Maintenance Organizations operating under capitation plan agreements with the Department of Public Welfare.

The selection of clients for participation in the Study of Client Impairments, Services and Outcomes was not intended to be representative of the population in treatment in general, or of any one agency in specific. Rather, the sample composition was designed to ensure sufficient representation of individuals within four key characteristic categories: age, race, sex and primary substance of abuse.

Given the pre-determined categories of the client population to be recruited, the Institute for Survey Research developed a sampling plan indicating the projected yield of study participants, by client characteristic, from each of the participating treatment agencies. This plan was based on data supplied by the participating agencies. Such data included general client characteristics, caseloads, numbers of intakes and average lengths of stay. This sampling plan was also used to facilitate the assignment of interviewers to geographic areas and specific agencies and to plan interviewer work loads.

For a variety of reasons the sampling plan required adjustment. The projections of the numbers of clients to be recruited at the participating agencies differed considerably from the actual number of client admissions during the study period. This prompted the recruitment of additional treatment facilities, the reassignment of certain interviewers and ultimately the need to hire and train additional interviewers.

While these problems with sampling caused logistic difficulties for the study team, they did not cause substantial difficulties in the ultimate recruitment of sufficient numbers of clients. As the study population was never intended to be representative of agencies’ clientele, it did not matter, from a client recruitment standpoint, where particular types of clients came from. Indeed, from the perspective of agency representation, the results of the client recruitment phase did over and under sample specific populations within particular agencies, but this had no substantive effect on the study methodology.

Interviewer Training/Development

Conducting field surveys requires specialized expertise. For this reason, the HOS Institute subcontracted with Temple University’s Institute for Survey Research to conduct the client interview phase of this study. ISR is an experienced field survey/research organization with an extensive array of expertise and resources.

Prominent among these resources is a nationwide cadre of experienced field interviewers. ISR engaged interviewers in the various geographic locales participating in this study. These individuals were not trained drug and alcohol clinicians; they were trained professional interviewers. Some of the interviewers were previously known to ISR, others had experience working with other field survey/research firms, and others were new to both field interviewing and ISR. Careful screening and training by ISR ensured the quality and consistency of the interviewers.

During the nineteen months of data collection, a total of forty-three interviewers were trained in the use of the various data collection and interview protocols. Some interviewers could not be retained due to unanticipated shortfalls in the projected work loads for their area. Other interviewers found that they could not adapt to the needs of the study.
Ultimately, twenty-nine trained interviewers completed three or more interviews and seventeen completed all assigned interviews. Table 3 displays the demographic characteristics of the twenty-nine interviewers who completed at least three interviews.

The initial interviewer training session, held in November of 1992, spanned four days. The training agenda, established by ISR following its traditional methods, included descriptions of the study, its objectives and the population to be interviewed. Instruction was provided regarding interactions with program personnel and potential study participants, study procedures and administrative forms and reporting requirements. The primary focus of the training consisted of item-by-item instruction for each module of the Initial Assessment and Client Treatment Experience interviews. Practice interviews and extended question/answer sessions served to address the concerns and enhance the skills of the interviewers. In an attempt to better prepare interviewers for the client population and provide as realistic a training experience as possible, ISR made use of three client surrogates who had participated in the earlier HOS Institute study of the field reliability of the Addiction Severity Index. These surrogates, professional actors skilled in portraying particular client profiles, participated in practice assessments sessions with many of the ISR interviewers.

Table 3
Demographic Characteristics of ISR Field Interviewers

<table>
<thead>
<tr>
<th>Category</th>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female</td>
<td>19</td>
<td>65.5%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>10</td>
<td>34.5%</td>
</tr>
<tr>
<td>Age</td>
<td>20-29</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>8</td>
<td>27.6%</td>
</tr>
<tr>
<td></td>
<td>40-49</td>
<td>10</td>
<td>34.5%</td>
</tr>
<tr>
<td></td>
<td>50-59</td>
<td>6</td>
<td>20.7%</td>
</tr>
<tr>
<td></td>
<td>60-69</td>
<td>4</td>
<td>13.8%</td>
</tr>
<tr>
<td>Education</td>
<td>High School</td>
<td>5</td>
<td>17.2%</td>
</tr>
<tr>
<td></td>
<td>Some College</td>
<td>7</td>
<td>24.1%</td>
</tr>
<tr>
<td></td>
<td>College Graduate</td>
<td>13</td>
<td>44.8%</td>
</tr>
<tr>
<td></td>
<td>Graduate Studies</td>
<td>4</td>
<td>13.8%</td>
</tr>
<tr>
<td>Interview Experience</td>
<td>With ISR</td>
<td>12</td>
<td>41.4%</td>
</tr>
<tr>
<td></td>
<td>With Others</td>
<td>9</td>
<td>31.0%</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>8</td>
<td>27.6%</td>
</tr>
</tbody>
</table>

In the nineteen-month period following this initial training session, an additional twenty-one interviewers were recruited and trained by ISR. All but four of these individuals received training in small groups, with sessions lasting from two to three days. Conducted by ISR staff, the emphasis of training was placed on a combination of study procedures and practice interviews.

In May of 1993 an additional three day training session was held to instruct interviewers in the use of the six-month Follow-Up Assessment instrument. This session also focused on client locating techniques and additional procedural requirements.

Interviewers were paid for attending the training. They also received payment for each interview they completed. The payment schedule varied based on the data collection instrument being used. Interviewers also received reimbursement for mileage, long-distance telephone calls and postage. Payment was also made for appointments broken by the client and for special work with provider agencies to explain the study and match clients with the selection criteria.

Field Data Collection

The actual effort of recruiting and interviewing clients was much more difficult than anticipated by either the HOS Institute or the Institute for Survey Research. Given the sampling plans and the criteria for client selection, interviewers first had to work with agency staff to determine the availability of eligible clients. Subsequent approval of specific client selections was made centrally by ISR.
Treatment agency staff had the responsibility for introducing the study to prospective clients, and for obtaining written authorization to release the client’s identity to the ISR interviewer for follow-up. The timeliness and ease with which this procedure occurred varied considerably across agencies. Meetings among ISR, HOS Institute and agency representatives were held at a variety of sites to facilitate the client recruitment process. Interview assignments and expected work loads were adjusted throughout the data collection phase of the study to accommodate changes in agency participation and client recruitment rates.

Client recruitment was hampered briefly by the initiation of an additional, federally-funded research study being conducted simultaneously in six study sites. The client selection and sampling processes for the two studies were coordinated in a timely manner. The presence of simultaneous studies probably created more interference for agency staff than it did for the clients, and ultimately had no substantive impact on the Study of Client Impairments, Services and Outcomes client sample.

Logistically, initial assignments and interview materials were provided to all ISR interviewers who successfully completed the training programs. Materials included a supply of numbered merchandise certificates to be used as respondent incentives, Informed Consent Agreement forms, Client Locator Questionnaire forms, Initial Assessment interview forms, Client Treatment Experience interview forms and administrative and reporting documents required by ISR.

At intake, clients were to be informed by agency staff that a research study was being conducted. Clients were then asked for written permission to release certain identifying information and selection criteria characteristics to the ISR interviewer. Clients were informed that, should they be selected for participation in the study, the ISR interviewer would be put in touch with them directly to schedule a meeting during which the ISR interviewer would more fully explain the study and the clients' responsibilities. This was a recruitment process designed to ensure the clients' right of choice. They had two opportunities to decide whether or not they would participate in the study. The degree to which agency staff presented the Study of Client Impairments, Services and Outcomes in a positive, consistent light is not known, although some variation undoubtedly occurred. The extent to which agency presentations encouraged or discouraged clients from participation is also not known. Also unknown is the degree to which requiring each client to sign a formal release of information/consent form may have discouraged certain clients from participating. It is important to note that the Informed Consent Form specified that throughout the study process, clients could, at any time, revoke their authorization and cease their participation in the study.

Final selection of clients was made by ISR in accordance with the sampling plan to ensure appropriate composition of the desired study sample. Once selected, clients were contacted through their programs to arrange the meeting with the ISR interviewer. If agreeable, the Initial Assessment interview was conducted during this first meeting. Subsequent interviews were conducted, either in person or via telephone in the case of the Client Treatment Experience interviews, and in person for the six-month Follow-Up Assessment interview, according to the schedule outlined in Table 2 above. The six-month Follow-Up Assessment interview was to be conducted anywhere between five and a half and seven months following completion of the Initial Assessment.

Clients were given merchandise certificates upon completion of the interviews as a means of thanking them for their time and encouraging them to participate. Clients were given certificates worth fifteen dollars for completion of the Initial Assessment interview; ten dollars upon completion of all three Client Treatment Experience telephone interviews; and, twenty-five dollars upon completion of the six-month Follow-Up Assessment interview. Certificates were purchased by the HOS Institute from K-Mart Stores (redeemable at a variety of subsidiary outlets) and provided to all study participants outside of Philadelphia. Within the Philadelphia sites, equal-value certificates to Acme, a wide-spread chain of supermarkets, were provided to respondents.

G. Case Finding/Data Collection

During the follow-up interview phase of this study, it became clear that a substantial number of study participants were being located in institutions and treatment programs (e.g., prisons, hospitals, half-way houses, and non-participating treatment programs). This required interventions by ISR with many of these programs to explain the study, the need to contact the client, and to make arrangements for the interviewer to conduct the Follow-Up Assessment interview.
Further client locating activities were conducted by ISR staff and interviewers. Most notably, ISR sent letters at periodic intervals between interviews reminding participants of upcoming assessments. To protect client confidentiality, the letters did not indicate the nature of the study. Participants were provided with a toll-free number which they could call to update their address, telephone number or other means of contact. Interviewers used both traditional and innovative methods to locate study participants, including making contact with programs, family members and locations listed by the participants as frequent haunts. All such contacts were made in such a way as to protect the confidentiality of the client and did not reveal the nature of the study.

By the end of the 6 month follow-up phase of this study in May of 1994, the combined efforts of the ISR staff and interviewers produced very impressive participation rates:

- Within outpatient drug-free, 253 (77.4%) participants had completed all scheduled interviews, and 299 (91.4%) had completed at least the Initial Assessment and Six Month Follow-Up Assessment interviews.

- Within intensive outpatient, 115 (62.5%) participants completed all interviews and 161 (87.5%) participants completed at least the Initial Assessment and six-month Follow-Up Assessment interviews.

- In non-hospital rehabilitation, 175 (53.8%) participants completed all scheduled interviews and 296 (91.1%) completed at least the Initial Assessment and six-month Follow-Up Assessment interviews.

See Section J in this chapter for additional information regarding participation rates.

H. Data Transmittal/Preparation

All completed interview materials were returned to ISR by the interviewers. These materials were returned as available, the interviewers not waiting for an entire set of protocols to be finished before submitting the instruments to ISR. The staff at ISR logged returned forms and processed the forms. Forms were visually reviewed for completeness, keyed to a data file, and missing or out-of-range values were identified. Subsequent correspondence with the interviewers sought to complete the files as necessary. The ISR staff also coded all open-ended questions to facilitate analysis of these assessment items. As these codes were created and assigned to the instruments, they were also keyed to each client's data set as appropriate.

Upon completion of data entry, edit and validity runs were conducted by ISR to identify any potential discrepancies or missing variables. Attempts to locate and/or correct such information were made.

The data were delivered to the HOS Institute on computer disks. The data files were separated by type of interview: Initial Assessment, CTE#1, CTE#2, CTE#3 and Six Month Follow-Up Assessment. Each delivery of data was accompanied by an extensive coding manual, identifying the location of each variable in the data set as well as providing definitions for the variables and codes used in the data set.

Preparing the Analytical Data Base

The staff of the HOS Institute reviewed the coding manuals provided by ISR, and reviewed the data tapes to make sure that they corresponded with the contents of the manuals. Further frequency analyses were conducted to determine the level of completeness for each of the clients involved in the study.

The HOS Institute also developed a variety of computer-based recode programs to prepare the "raw" data for analysis purposes. Questions were reviewed for consistency and identified as needing recoding or as being acceptable as originally entered by ISR. For example, in cases where questions asked for lengths of time (e.g., how long have you been employed in your current job), the client could answer in days, weeks, months, years or combinations of these time periods. Hence, the answers had to be translated into a common time unit. In other cases, responses to certain items were grouped (e.g., individuals' ages into age groups) for discussion and presentation purposes while retaining the data in its original form for analytical purposes.

The final step in preparing the data set was the development of selected composite scores, scales and indexes. These
scores combined multiple items into more global measures. While drawing upon the power of the individual data, the composite scores and scales provide a sensible means of data reduction and analysis. These composite scales are discussed in greater detail below.

**Interview Completion Rates**

Of the 836 clients completing Initial Assessments, 756 (90.4%) also completed the six-month Follow-Up Assessment. This is a tribute to the skills and diligence of the Temple University tracking staff and interviewers who maintained a level of effort and persistence necessary to garner this strong response rate. The completion rate for the six-month Follow-Up interview does not vary substantially across the three treatment types: outpatient drug-free at 91.4 percent; intensive outpatient at 87.5 percent; and, non-hospital rehabilitation at 91.1 percent.

On the other hand, and of considerable import to this study, the completion rate for the telephone Client Treatment Experience interviews did not produce as impressive a response rate. Overall, the percentage of clients completing the Initial Assessment, all three scheduled Client Treatment Experience interviews and the six-month Follow-Up Assessment drops below two thirds (65.0%) of all participating clients. This figure does vary substantially across the three types of treatment: outpatient drug free at 77.4 percent; intensive outpatient at 62.5 percent; and non-hospital rehabilitation at 53.8 percent. However, 78.4 percent of all clients completed at least two of the Client Treatment Experience Interviews, with the strongest participation rate occurring in outpatient drug-free (86.0%), a lower participation rate in intensive outpatient (77.2%), and the lowest showing in non-hospital rehabilitation (71.0%). Within the total sample of 756 clients who completed both the Initial and Follow-Up Assessments, only 25 (3.0%) did not complete any intervening Client Treatment Experience interviews.

The combinations and rates of interview completion are displayed in Table 4. Reasons for these different completion rates are explained earlier in this chapter (see Sections E and G) and the impact of these differential rates are discussed in the relevant sections of the statistical analyses.