

## **CHAPTER III. OVERALL STUDY DESIGN AND STATUS OF THE CALIFORNIA TREATMENT OUTCOME PROJECT (CaITOP)**

The overall goal of CaITOP was to develop, implement, and pilot test an outcome monitoring system for the statewide alcohol and other drugs system of care and to enhance the California Department of Alcohol and Drug Programs' existing management information system. CaITOP aimed to modify and improve the data collection and management infrastructure by creating an automated system that can be used on an on-going basis to track individual client outcomes and the cost-offsets in other health, social service, and criminal justice systems. Standardized client assessment and program placement tools were used to collect data on individuals at admission, during treatment, at exit from treatment, and at follow-up. In addition, program costs were assessed using a standardized instrument. The OMS provided crucial information that can be used to make adjustments to the delivery system and to promote continuous quality improvement and effective treatment service delivery.

This chapter presents the CaITOP study design. Following a list of the guiding research questions and hypotheses, CaITOP's three evaluation components are described. The study's target client population, data collection procedures, schedule, and instruments/measures are also examined. Next, the status of primary data collection and analysis and secondary data linkage and analysis are reviewed. After the methodological limitations of the study are delineated and addressed, the chapter concludes with comments on the study design.

### **Study Research Questions and Hypotheses**

Consistent with the overall CaITOP goal, UCLA/ISAP conducted an evaluation of: (1) the implementation of the outcome monitoring system, including the Center for Substance Abuse Treatment approach to interstate OMS comparability; and (2) the feasibility, applicability and utility of the OMS for statewide implementation. The following is a list of the original research questions pertaining to admission, assessment, service utilization, treatment outcome policy and planning, and the interstate approach. (A list cross-referencing these research questions to specific chapters of this final report appears in Appendix B.)

#### ***Assessment and Admission***<sup>1</sup>

1. Can the existing California Alcohol and Drug Data System (CADDs) be modified so that providers include more comprehensive standardized admission assessment information to more accurately determine service needs and addiction severity of clients entering treatment?

---

<sup>1</sup> Some CaITOP treatment providers distinguish between "intake," the point of initial contact with and assessment of a client, and "admission," the point at which all assessments have been completed, a treatment plan has been made, and a client begins receiving services. Throughout this report, the term "admission" is used to encompass the intake and assessment process.

2. Can standardized admission, assessment, and placement criteria tools be implemented across the range of treatment providers and county treatment systems in California?
3. Does a standardized assessment instrument (that includes a core set of limited questions, the Addiction Severity Index, Lite version [ASI Lite] and the California approach to the American Society of Addiction Medicine Patient Placement Criteria [CA ASAM PPC II, referred to as "CA ASAM PPC"]) adequately assess the services needed by the client?
4. Does this standardized assessment process recognize the diversity of clients and needs of special populations in California, including racial/ethnic minorities?
5. Can computers be used to collect and routinely upload information to the state data system?
6. Do enhanced client assessment data collected at termination of the treatment episode predict ASI Lite scores at follow-up?
7. What are the primary reasons that clients cannot be served in the level of care to which they are assigned by the CA ASAM PPC?
8. Can the California Department of Alcohol and Drug Programs (ADP) continue to recognize the diversity of service delivery systems and philosophies, including special populations (e.g. welfare recipients and criminal justice offenders), but still ensure cross-program, cross-county, and inter-state comparability in monitoring service efficacy?

### ***Treatment Service Utilization***

9. Are there differential system, program, or ADP effects (e.g., amount of training required or error rates) in the implementation of the automated service system based on county and/or provider characteristics?
10. What are the service components generally received by clients participating in California alcohol and other drugs (AOD) treatment programs?
11. Do clients receive differential service components based on differential status at assessment?
12. In relationship to client characteristics at admission, does any particular constellation of services have a greater impact on functionality at exit from active services and at follow-up?
13. For clients with the lowest functioning scores at admission, what constellation and timing of services has the greatest impact on increased functionality?

### ***Treatment Outcomes***

14. It is hypothesized that there will be significant improvement in client function during and after treatment, as compared to that at treatment entry.
15. Treatment process measures in terms of services received, the appropriateness of services to clients' level of functioning, and client satisfaction will be positively related to outcomes at follow-up.
16. Cost invested in treatment is expected to be offset by improved client functioning and reduced costs from other service utilization (e.g., increased employment, reduced health, social, and criminal justice service utilization) during and after treatment.

17. There will be a significant correlation between client interview data and the administrative data across comparable outcome domains (e.g., legal involvement and employment).

### ***Policy and Planning***

18. Can the OMS identify and quantify gaps in the levels of care and service elements in the alcohol and other drugs (AOD) treatment system?
19. Can the most effective services and exemplary programs be identified by the OMS? Conversely, can poorly performing programs be identified and targeted for technical assistance?
20. Is the information provided by the OMS sufficiently comprehensive, detailed, and flexible to guide planning and policy decisions?
21. Does a specific consideration of client satisfaction with services offer policy and planning opportunities?
22. Generally, what lessons were learned that would facilitate the implementation of efficient and effective outcome monitoring systems in all California counties/providers and in other states?
23. Are there specific aspects of ADP's or other states' OMS that measure treatment results better than other aspects?
24. Is service utilization data from linked state agency files more reliable and valid than client self-reported data?
25. What are the costs and benefits of ADP's or other states' OMS to the various stakeholders?

### **The CalTOP Evaluation Design**

The CalTOP evaluation consisted of three components encompassing the original study questions and hypotheses: (1) evaluation of the implementation of the OMS and the interstate consensus process; (2) evaluation of treatment outcomes and service effectiveness based on changes in self-reported client functioning and satisfaction; and (3) evaluation of treatment outcomes based on cost-offsets derived from reduced health and social service utilization. Each component is described below.

#### ***Evaluation Component 1: Outcome Monitoring System Implementation***

This component examined the feasibility, applicability, and utility of implementing the OMS as well as the interstate consensus process designed to identify common measures and methods. The purpose of the process evaluation was to understand the implementation of the OMS across diverse client groups, counties, and providers.

A formal qualitative study involving focus group discussions with a total of 230 treatment provider staff was conducted from October 2000 through 2001. Twenty-eight focus groups were held, representing 43 of the 44 participating provider sites. The results of the study are presented in Chapter V and in Appendix C. In addition, the following documents were produced, collected and analyzed for patterns, implementation issues, and resolution of problems identified: minutes from weekly conference calls with ADP, UCLA/ISAP, and William Mercer Incorporated staff; minutes and presentations from monthly CalTOP meetings with ADP, UCLA/ISAP, and

participating county and provider representatives; minutes from weekly staff meetings with UCLA/ISAP CalTOP staff; notes from telephone calls with providers, ADP officials, and other stakeholders; correspondence with stakeholders via electronic mail; and monthly project status reports for providers.

### ***Evaluation Component 2: Treatment Outcomes and Service Effectiveness***

Surveys of a sample of clients, conducted at 3 and 9 months post-admission, were analyzed to assess client outcomes and service effectiveness. Client satisfaction was assessed at 3-months post-admission and service codes reported by providers was assessed at 3-months post-admission as well. Client functioning, defined as the severity of AOD problems (as measured by the scores on the ASI Lite), was assessed at treatment entry and at 9 months post-admission. Characteristics of services received by the client during treatment were identified using the Treatment Services Review (TSR). Treatment outcomes were assessed based on changes in client functioning in relation to individual client characteristics and patterns of AOD treatment service utilization.

Evaluation component 2 is addressed in Chapters VI through X of this final report. First, Chapter VI describes the characteristics of CalTOP clients at each stage of data collection and compares them to countywide and statewide client populations in order to establish the generalizability of findings. The subsequent chapters address various aspects of client treatment outcomes and service effectiveness: Chapter VII – Treatment Completion and Retention; Chapter VIII – Service Utilization and Satisfaction; Chapter IX – Alcohol and Other Drug Treatment Outcomes; and Chapter X – Program and Service Characteristics.

### ***Evaluation Component 3: Service Utilization and Cost-offset Assessment***

In order to determine changes in service utilization at other health and social service agencies and changes in criminal justice involvement, administrative data on CalTOP clients were linked to cover two time periods: 12 months prior to and after admission to AOD treatment. Cross-system data linkage strategies and findings are presented in Chapter XI. Cost-offset<sup>2</sup> was assessed by comparing the publicly funded services that were used by the client before and after treatment admission. Treatment cost information from the Drug Abuse Treatment Cost Analysis Program (DATCAP) was combined with CalTOP and cross-system data as a basis for the cost-offset analyses, which are presented in Chapter XII.

### ***Feasibility Assessment and Recommendations***

Drawing on findings from all three of CalTOP's evaluation components, Chapter XIII assesses the feasibility of implementing an OMS statewide. Recommendations based on the lessons learned from the first 4 years of CalTOP are offered.

---

<sup>2</sup> Economists determine the cost-offset of a particular service by comparing the estimated direct costs of the service to the indirect savings resulting from reductions in other types of costs that can be attributed to the service.

### ***Target Client Population***

All AOD clients admitted to the participating treatment facilities in the designated counties were to be included in the CalTOP system, with the exception of: (1) clients under the age of 18; (2) adult clients who participated only in short-term detoxification programs; (3) clients who dropped out of treatment prior to completing an assessment for treatment planning<sup>4</sup>; and (4) clients who participated only in driving under the influence (DUI) mandated programs. Clients under the age of 18 were excluded for three reasons. First, California youth may receive AOD services under a minor consent provision and parental consent for participation in the research cannot be obtained. Second, adolescents represent only 7.5% of all treatment admissions. Third, the ASI version selected for CalTOP is not appropriate for youth, and the adolescent version of the ASI requires specific training, information systems, and data analyses that could not be accommodated within the scope of CalTOP. Adult clients in short-term detoxification programs were excluded because research has shown that in the absence of longer-term care, these clients often relapse and do not retain the benefits of treatment (Anglin & Hser, 1990). Clients who dropped out of treatment prior to completing an assessment were excluded because the CalTOP study design requires a baseline assessment to measure treatment outcomes. Finally, clients in DUI-only programs were excluded because these privately-funded programs receive no SAPTBG funds in California and are therefore excluded from CADDS/TEDS.

For the follow-up sample, researchers initially planned to select a stratified random sample for the telephone interviews from the pool of clients who agreed to participate. However, due to a one-year delay in the initiation of primary data collection and to lower than expected numbers of clients agreeing to participate, researchers had to include all subjects admitted during the first year of data collection who gave consent to participate (between April 3, 2000 and May 4, 2001) in the follow-up study.<sup>5</sup> In effect, the follow-up sample was a census of all clients admitted consecutively who gave consent. (A detailed explanation of this change in the follow-up sample is offered as part of a description of the client sample in the section below, entitled Data Collection Procedures, Schedule, and Instruments/Measurements.) All clients entered into the CalTOP system during this period were included in the 12-month pre- and post-admission cross-system data linkage.

### ***Power Analysis***

To examine behavioral improvement for AOD treatment clients generally, it was determined that a follow-up sample of approximately 2,700 would result in an interviewed sample of about 2,200 clients and would detect an effect size of .12 (power = .80; one-tailed alpha = .05), which is considered a small effect size ( $ES < .20$ ) in behavioral science research (Cohen, 1988). Achieving this level of precision compares favorably to the median effect size ( $ES = .40$ ) in evaluation research (Lipsey, 1990). The

---

<sup>4</sup> Not all provider sites excluded clients who did not complete the assessment process from the CalTOP system, which affected the actual make-up of the study population.

<sup>5</sup> In 2002 ADP contracted with UCLA/ISAP to follow up an additional 500 clients who entered treatment between 10/18/01 and 12/12/01. This data will be included in future supplements to this report.

power of the projected interview sample to detect an effect size of .35 is .98. Overall, there is a relatively low probability of a type II error in this outcome evaluation. The interviewed follow-up sample size, at 2,200 cases, is sufficiently large to detect gender and ethnic differences by subgroup analyses. This size also supports multivariate analyses (e.g., logistic regression) with sufficient power to include at least 20 variables in the equation. The analyses in this final report are based on 2,620 3-month follow-up interviews and 2,639 9-month follow-up interviews. The sample size for narcotic treatment programs was insufficient for separate analyses.

### **Data Collection Procedures, Schedule, and Instruments/Measurements**

Staff at participating treatment programs were asked to assess all entering adult clients using CalTOP instruments (described in detail below) as part of the normal admission process. Program staff were also responsible for recording and reporting services received by these clients during treatment and for assessing clients exiting treatment. In addition, staff recruited eligible clients for the follow-up study by explaining the study and obtaining clients' informed consent to be contacted at a later date by UCLA/ISAP researchers for phone interviews at 3 and/or 9 months post-admission. Staff asked clients who consented to participate for locator information. Those who completed the follow-up interviews were paid \$10 for the first interview and \$15 for the second, both in the form of money orders mailed to their designated addresses. Client data collected by both providers and UCLA/ISAP staff (with the exception of the 3-month interview data) were electronically transmitted to ADP's relational database.

CalTOP's standardized instruments were reviewed, modified and finalized as part of the TOPPS II interstate consensus process (see Chapter IV for details). Comparable standardized data were collected at two or more points in time during the project to measure change.

**Figure 3.1. Data Collection Process**

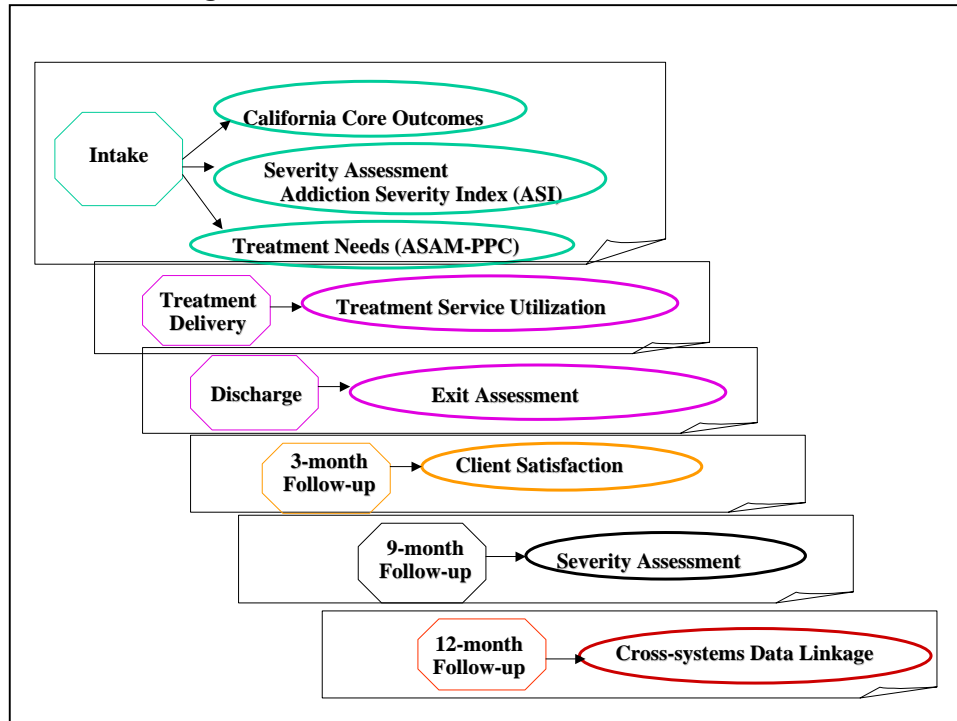


Figure 3.1

The instruments/measures used during specific time points ( $T_1$ ,  $T_x$ ,  $T_2$ ,  $T_y$ ,  $T_3$ ,  $T_4$  - terminology developed by the TOPPS II Interstate Steering Committee) are described below. (See Appendix D for copies of CalTOP's instruments and consent forms. For a matrix of all data elements, prepared by ADP staff, see Appendix E.)

### ***Admission ( $T_1$ )***

The California Admission form includes: (a) Unique Client Identifier (UCI), (b) California Alcohol and Drug Data System (CADDs, ADP's management information system) admission questions, and (c) California Core Outcome Questions (CCOQ). The UCI is composed of six elements taken from the client's first and last name, sex, date of birth, social security number, place of birth, and mother's first name. The UCI is used to establish for each client an identifier that is not likely to be duplicated with another client. Data (27 items) collected via CADDs identify the types of services (i.e., modality) provided and describe the demographics of the population receiving those services. CCOQ questions ask for information on special populations (e.g., welfare recipients and criminal justice offenders) for analysis of client-specific needs and the differential impact of service delivery to the groups as well as a core set of items representing the seven ASI domains developed by California AOD stakeholders.

The Addiction Severity Index, Lite version, Clinical Factors TOPPS II form (ASI Lite CF TOPPS II, referred to as the "ASI Lite") was modified from the Addiction Severity Index (McLellan, Luborsky, Woody, & O'Brien, 1980; McLellan, Cacciola, Kushner, Peters,

Smith, & Pettinati, 1992) which is a structured interview that assesses problem severity, in the past 30 days and during the lifetime, in seven areas: alcohol use, drug use, employment, family and social relationships, legal, psychiatric, and medical status. This modified instrument combines ASI Lite CF questions (116) with TOPPS II and the federally mandated Treatment Episode Data Set (TEDS) questions (34) for a total of 150 questions. The ASI Lite CF includes the ASI Lite and nine additional items (included in the full ASI) to allow calculation of both clinical factor scores and composite scores in the seven areas. Clinical factor scores are standardized to permit comparisons of problem severity across the seven domains at a single point in time. Composite scores collected at more than one point in time are designed to measure client change within domains. Composite scores are not comparable across domains.

The TOPPS II questions (e.g., number of days stayed overnight for medical problems in a hospital in the past 30 days and 6 months, number of times arrested in the past 30 days and 6 months) were developed through a consensus process allowing for interstate comparisons. The TOPPS II Interstate Steering Committee developed variable domains and instruments of common interest after reviewing those proposed by each of the 19 participating states. Questions were then identified to address the need for a brief instrument to improve accountability and capture data in socially and economically significant areas. These items measure a wide range of behavioral changes, including alcohol and drug use, employment, criminal activity, housing situation, family and social relationships, and medical issues. In addition, some of the items were selected because they are comparable to items already included in the federally mandated TEDS and fulfill the voluntary outcome measures needed for CSAT's Substance Abuse and Treatment Block Grant reporting. Finally, most of the items had been field tested as part of CADDSS and/or the ASI.

The California approach to the American Society of Addiction Medicine Patient Placement Criteria form (CA ASAM PPC) is a two-page clinical tool used to guide the selection of the most appropriate form of treatment in various levels of care for alcohol- and other drug-abusing populations. The tool aids clinicians in deriving the answer to three questions: What is the level of care needed by the client? What is the level of care to which the client was admitted? What is the reason for any difference?

Providers were asked to complete the California admission form and ASI Lite within the first 10 days of the client's admission to establish a baseline. They were also asked to conduct the CA ASAM PPC assessment at admission, and any time thereafter, to determine and/or document the need for a change in the clients' level of care.

### *Recruiting Clients for the Follow-up Study*

Providers were also responsible for recruiting clients for the 3- and 9-month post-admission telephone interviews. Staff were to explain the study and review the Informed Consent Form (ICF) with each eligible client. If the client agreed to participate, he or she signed the ICF and then completed the Locator Form. The ICF is a 4-page document that explains the CalTOP follow-up study to eligible client participants and obtains permission for later contact and interviewing. The Locator Form collects information that UCLA/ISAP staff used to contact clients who agreed to

participate in the CalTOP follow-up study. This form contains 34 questions, although participants were required to provide information on only three contacts. Providers were asked to recruit clients into the follow-up study using the ICF and Locator Form anytime after admission, but ideally within the first 30 days after treatment admission.

### ***During Treatment (T<sub>x</sub>)***

Data collection involved the recording of discrete services a client received while in treatment and, in some cases, those received before and after participation in treatment. The service codes were developed specifically for CalTOP and were pilot tested as part of the project. The service utilization data includes: UCI, provider identifier, county of provider, date of service, type of service/service code, frequency and duration of services, and program changes in the client's level of care. CalTOP providers were asked to collect data on 17 service elements and report every service delivered to each client. These service elements include screening and admission; bio/psycho/social assessment; level of care assessment; service planning/review; case management (referral assessment, linkage assurance, collateral contacts); episode closure; detoxification services; individual counseling (in the seven ASI Lite domains); group counseling (in the seven ASI Lite domains); family counseling; family group counseling; laboratory (AOD urine screening, TB test, pregnancy test, AOD blood test, AOD breathalyzer/swab/patch, hepatitis); medical services (general medical, dental, medical consultation, alternative medical services); pharmacotherapy (methadone dosage, LAAM dosage, medication management of naltrexone, medication management of Antebuse, medication management of psychiatric medications, medication management of prescribed medications, medication management of methadone, medication management of LAAM); mental health (psychiatric, psychological); vocational/educational (employment services, rehabilitation services, GED training/testing); and support and other services (legal services, shelter/supportive housing, transportation). For individual, group, and family counseling, duration of each session was also recorded. (See Appendix F for CalTOP's "Service Element Manual Final Draft.")

Provider staff were asked to record the code for every service provided to the client as he or she moved through treatment and to enter each code, as well as the date the service was provided, into the online Web-based information system. The volume of service code documentation varied by modality, intensity of services, and length of stay in treatment.

### ***Exit from Treatment (T<sub>2</sub>)***

Recognizing that recovery can be a lifelong process, CalTOP's stakeholders sought to define "discharge" and "episode" to capture the role of successive admissions in recovery. An "episode" of treatment was defined as continuous care at a single provider site. Providers were not required to discharge and readmit a client who transferred from one program (e.g., day treatment) to another (e.g., outpatient counseling) within the same provider site. "Discharge" was defined as the point at which clients stop receiving services at a single provider site.

Responses to 27 CADDs/TEDS discharge items, 11 TOPPS II items, and 5 CCOQ items were to be collected at discharge. Providers were asked to discharge dropout clients within 30 to 35 days of the last face-to-face contact so that each client's time in treatment could be calculated. Staff were instructed to "administratively discharge" a dropout client by filling out the discharge items to the best of their ability. The date of the last face-to-face encounter was filled in from information contained in the clinical record. The client's discharge status was reported including whether or not the treatment plan was completed.

### ***Follow-up Interviews at 3 Months (T<sub>1</sub>) and 9 Months (T<sub>2</sub>) Post-Admission***

The 3-month time frame was chosen to: (1) capitalize on the clients' ability to recall specific services received while in treatment and accurately rate satisfaction/treatment received; (2) allow researchers to stay in touch with clients and thereby increase the 9-month follow-up rate; and (3) allow a brief assessment of clients' status. The 9-month time frame was selected to: (1) increase the number of clients in the sample who would have completed treatment (given that the average length of stay in treatment is 3 months); and (2) allow for assessment of longer-term treatment effects.

UCLA/ISAP interviewers conducted, by phone, two follow-up interviews, each lasting approximately 20 minutes, with clients at 3 and 9 months post-admission. The first interview (200 questions) is composed of TOPPS II items and the In-Treatment Experience Survey. Clients' Locator Forms were also updated at this time. The survey includes questions about clients' treatment satisfaction and treatment services received using the Treatment Services Review (TSR) (McLellan, Alterman, Cacciola, Metzger, & O'Brien, 1992) which surveys clients with respect to the different types and frequencies of treatment services received in the past 3 months (both within and outside of the program), focusing on the same seven problem areas as the ASI Lite.

The second interview (200 questions) focuses on treatment satisfaction (a portion of the In-Treatment Experience Survey) and includes the ASI Lite CF TOPPS II follow-up instrument, which provides treatment outcome data (e.g., treatment retention, changes in problem severity).

### ***Follow-up at 12 Months Post-Admission via Cross-System Data Linkage (T<sub>3</sub>)***

The CalTOP Web-based information system maintained by ADP (described below) created a unique ID for each client in order to develop and maintain an individual treatment history. Researchers used the elements of each client's Unique Client Identifier (i.e., client's first and last name, sex, date of birth, social security number, place of birth, and mother's first name), contained in the California Admission form, to match clients with information maintained in other health and social service system databases for the 12-month follow-up assessment. The integration of data provided both self-report and state agency information about the changes in pre- and post-admission service utilization of, for example, health and social services. This integrated data set was also used in the cost-offset analysis.

### *Drug Abuse Treatment Cost Analysis Program (DATCAP) and Staff Time Allocation Worksheets*

The cost-offset analysis required program cost data that were derived from DATCAP and staff time allocation worksheet data. In October 2001, participating treatment providers were asked to complete the DATCAP, a standardized instrument for measuring economic costs, and to have all paid and unpaid staff members fill out time allocation worksheets. Between February and August 2002, in-person visits were made to 24 provider sites requesting technical assistance with filling out the DATCAP instrument. By the end of August 2002, 32 providers had submitted forms, many of their responses still require further clarification to be used for estimating cost for treating CalTOP clients.

### *CalTOP Service Code Survey*

Information gathered from focus groups and monthly meetings with provider staff suggested that many treatment providers were unable to collect and/or enter service codes into CalTOP's Web-based information system on a regular basis. Preliminary analyses of actual service codes entered into the system confirmed that the data set was incomplete. In an effort to provide a context for interpreting the service code data set, and to characterize CalTOP programs, UCLA/ISAP staff created the CalTOP service code survey, designed to gather information about the treatment received by the average client. In April 2002, the survey was sent to the 43 providers participating in CalTOP<sup>6</sup> and by July 2002 all providers had completed and returned the surveys to UCLA/ISAP.

## ***Primary Data Collection and Analysis***

### *Selection of Participating Counties and Providers*

Thirteen counties were selected from the 19 that volunteered to participate in CalTOP. (All of California's 58 counties provide AOD services. See Figure 3.2 for a list of the participating counties. See Appendix G for a list of the participating providers.) Counties were selected using the following criteria developed by ADP in collaboration with key stakeholders (e.g., the County Alcohol and Drug Program Administrators Association of California, CADPAAC): county client demographics, client flow, automation readiness, familiarity with assessment tools, the ability to collect necessary client data utilizing the specified instruments, geographic location, and commitment to CalTOP. As the implementation start date approached, three of the selected counties and their provider sites decided not to participate and were replaced with alternates. By April 2000, when data collection officially started, 44 treatment provider sites in 13 counties had committed to participating in CalTOP.

---

<sup>6</sup> In May 2001, one of the 44 treatment providers stopped participating in CalTOP.

**Figure 3.2. CalTOP Counties**



Figure 3.2

*Client Recruitment*

Originally, the targeted overall admission sample size for a year period was 10,000 adult clients, an estimate based on 1999 California Alcohol and Drug Data System (CADDSS) data for the participating providers. UCLA/ISAP researchers anticipated that approximately 85% of the 10,000 clients would agree to participate in the follow-up interviews and that of these, 2,700 could be randomly chosen and interviewed at 3 and/or 9 months post-admission. The same CADDSS data were used to determine the number of overall subjects each site was expected to contribute to CalTOP.

Data collection began with a small set of providers in April 2000, approximately one year later than the originally scheduled start date. Data collection gradually increased as staff at more sites became proficient in implementing the program. The actual flow of clients indicated a more realistic overall sample size goal to be 8,000 clients per year. Also, during the first 3 months of data collection, because the overall follow-up study enrollment was low and varied greatly by site (from 0% to 100%), it was necessary to include all clients consenting to participate in the follow-up to ensure that 2,700 clients could be interviewed to fulfill the contract obligation within the project timeline even with the one-year extension of the study. Hence, the follow-up sample is a census of all eligible clients admitted during the first year when data collection started, and who gave their consent.

There was a one-year no cost extension after the original 3 year project was over. As with all other TOPPS II states, collection of client admission data was continued after the target admission data were achieved. Figure 3.3 shows monthly admission and follow-up recruitment rates between May 2000 and May 2002. The volume of data collected varied over time at many of the participating sites. By May 2002, data from 14,657 clients had been entered into the CalTOP system and 8,249 had agreed to participate in the 3- and 9-month follow-up interviews.

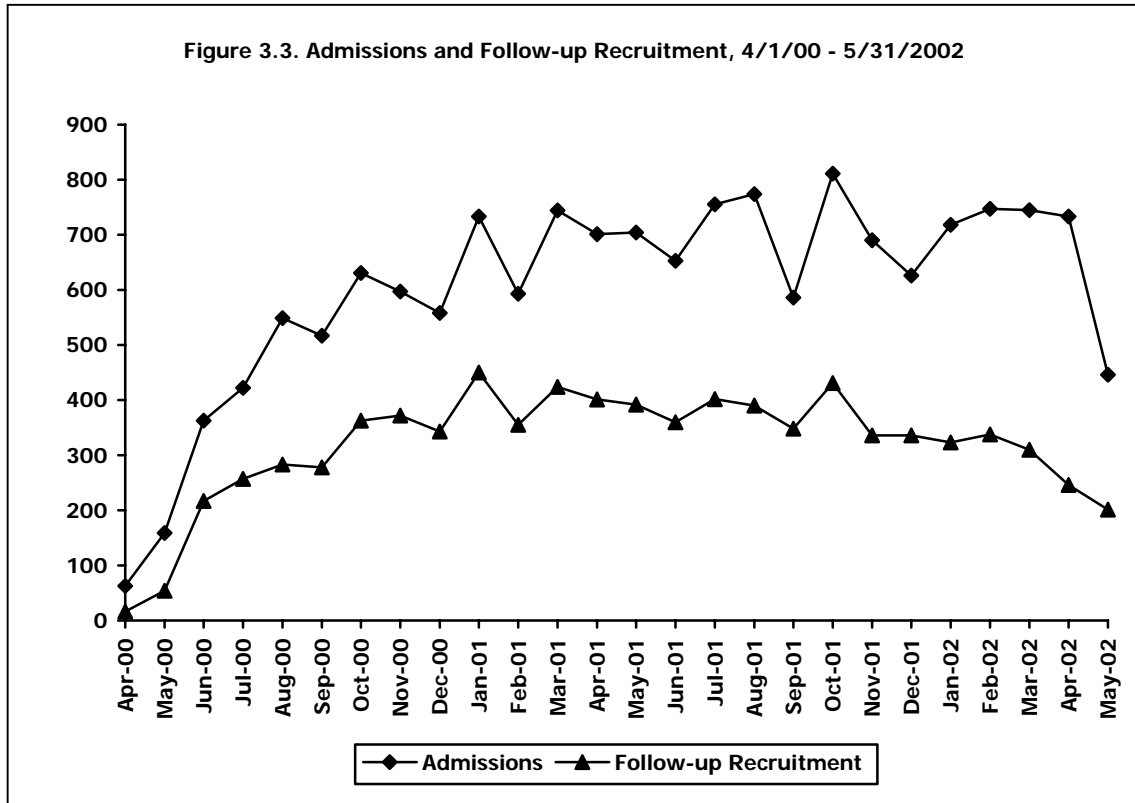


Figure 3.3

Figure 3.4 shows the number of clients recruited for the follow-up study by modality in Year One (April 1, 2000 to May 31, 2002), the pool from which the 3- and 9-month interviews analyzed in this report were drawn. Two thousand seventy-nine (2,079) outpatient drug free (ODF), 1,439 residential (RES), and 201 narcotic treatment (NT) clients were recruited for the follow-up study by participating providers in Year One.

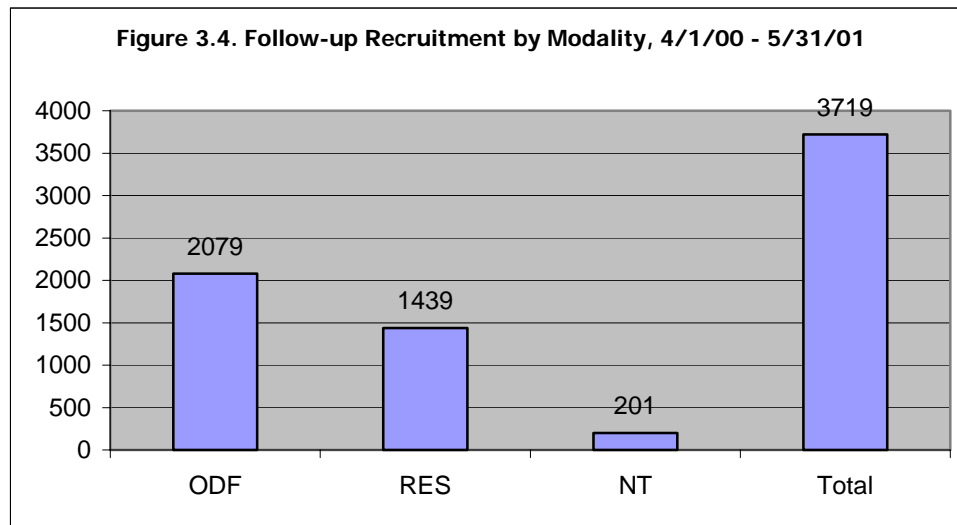


Figure 3.4

#### *Status of CalTOP Data Collection for Year One and Year Two*

The status of data collection during Year One and Year Two of the study was determined in order to ensure that maximum sample sizes were used in all analyses. Tables of the number of CalTOP records and individual clients at each data point by modality were constructed. The Tables include data gathered for 25 outpatient drug-free (ODF), 11 residential (RES), 4 narcotic treatment (NT) and 4 mixed modality facilities, totaling 44 treatment providers. CA ASAM PPC data were analyzed to assign records and individuals from mixed modality providers to either ODF or RES.

Data on admissions during Year One (April 1, 2000 through May 31, 2001) are contained in Table 3.1a. In addition, Table 3.1a includes information on the 3- and 9-month follow-up interviews, which were conducted with clients who consented to participate in the follow-up study during Year One. Table 3.1b presents data on information collected for Year Two (June 1, 2001 through May 31, 2002) and Table 3.1c presents information on data collected for the two years combined (covering April 1, 2000 to May 31, 2002).

#### Quality Control

A small fraction of data are missing in each row because they were either not collected, not input or not accepted by the CalTOP database. In addition to primary quality control checks at the point of data collection and entry (e.g., strict edits, error reports), UCLA/ISAP staff cleaned and checked data for errors to prepare files for analysis. Data were downloaded via data extract (ASCII) files from ADP's secure web site on a weekly basis through July 15, 2002. Raw data were preliminarily cleaned. Each transaction contained a number for identification and a process code number, which indicated whether a provider had updated a previous transaction. Using this information, staff selected the most current record for each transaction. In addition, techniques were devised to remove duplication at each data point. For example, when duplicate ASI Lite records were found, only the latest, revised record was counted. All 3-month data with

more than one admission record were hand-checked to match admission and discharge information per episode per client.

### Sample Sizes

Because not all data elements were complete for all clients at each of the assessment points, sample sizes in this final report vary depending on the combination of data elements and specific time points at which the analyses had to be conducted. To maximize the sample size and data utilization, we used the maximum number of clients for whom the complete data relevant to specific research questions were available. Descriptions of each table row and definitions of the sample sizes used in data analyses follow.

*Client Information:* Included in the first row of Tables 3.1.a, 3.1.b and 3.1c are the number of clients based on CalTOP IDs. In Year One there were a total of 7,080 IDs and in Year Two there were a total of 7,577, amounting to 14,657 CalTOP client IDs for the two years of data collection combined. The CalTOP ID was designed to identify unique clients within the system. Clients with repeat admissions should retain the same ID number across treatment episodes both within and across treatment providers. However, upon preliminary analysis, evidence suggested that the actual number of unique clients may be slightly less than the number of CalTOP IDs in the system. By cross-checking Social Security number, date of birth, and client first and last name against CalTOP IDs, it was found that the same client can have more than one CalTOP ID. For example, some clients appeared to have been issued different IDs by different CalTOP treatment providers. Therefore, the CalTOP ID may slightly overestimate the true number of unique clients in the system. To date, no further analysis has been undertaken to determine the extent of the overestimation. For each of the data points following the client information row, the number of records and the number of individuals are provided.

*Admissions:* Two types of Admission records are contained in the CalTOP system, depending on which software program the participating treatment providers opted to use. The majority chose to input ASI information at admission using DeltaMetrics software. For these counties, a complete admission was comprised of DeltaMetrics ASI information and the Admission California form. The Admission California form includes the following data elements: (a) Unique Client Identifier (UCI), (b) California Alcohol and Drug Data System (CADDs, the existing MIS) admission questions, and (c) California Core Outcome Questions (CCOQ). In the Tables, the row for these data are labeled "Admission CA." Six providers in two counties used Accurate Assessments rather than DeltaMetrics software, which contains all of the elements of the California admission form, except the CADDs. The Accurate Assessments software includes the CADDs in a separate module, apart from the CalTOP admission. In the Tables, the row for these data are labeled "Admission AA." The row labeled "Adm" adds the two types of admission records together. In Year One there were a total of 7,183 admission records for 6,852 clients, suggesting that some clients were admitted more than once.<sup>7</sup> In Year Two there were a total of 7,879 records for 7,159 clients. For the two years

---

<sup>7</sup> CalTOP's OMS permits us to track clients with repeat treatment admissions over time. Future analyses should focus on this group of clients separately to understand their treatment careers.

combined, there were a total of 15,062 records for 14,011 clients, which is lower than the total number of clients in the “client information” row because some clients have more than one CalTOP ID and some clients who did not complete the admission process were entered into the CalTOP system.

*ASAM:* This row presents the number of ASAM records and clients in the CalTOP system. In Year One, there were a total of 7,437 records for 6,813 clients and in Year Two, there were a total of 8,097 records for 7,178 clients, amounting to a total of 15,534 ASAM records for 13,991 clients for the two years of data collection combined. The ASAM data are analyzed in Chapter VII, which focuses on treatment completion and retention and in Chapter IX, which examines AOD treatment outcomes.

*ASI Lite:* This row reports the number of admission ASI Lite assessments entered into the CalTOP system.<sup>8</sup> In Year One, there were a total of 6,458 ASI Lite assessments for 6,215 clients. In Year Two, there were a total of 6,040 records for 5,574 clients. Table 3.1c shows that for the two years combined the total number of admission ASI Lite assessments in the system was 12,498, corresponding to 11,789 clients. This is the sample that was used to conduct the treatment completion and retention analyses described in Chapter VII. By selecting clients for whom at least one admission ASI Lite was in the system, even if Admission CA or the Admission AA record was missing, we maximized the number of assessments and clients analyzed.

*Adm or ASI Lite:* The number of records and clients with either admission information or an admission ASI Lite is contained in this row. For the two years combined, there were a total of 15,618 records corresponding to 14,420 clients. Because these data include all clients in CalTOP for whom there is demographic information, this sample was defined as “admissions” to CalTOP and used to analyze the characteristics of the study population, which is presented in Chapter VI. As part of Chapter VI, we compared characteristics of CalTOP admission samples and follow-up samples. Using CADDs, we also compared our study population to the client population in CalTOP counties as a whole and statewide.

*Episode Status Changes:* In the next row of the three Tables episode status changes (ESCs) are provided, revealing that in Year One of data collection there were 5,110 ESCs, corresponding to 4,858 clients and in Year Two, there were 3,641 ESCs, corresponding to 3,330 clients. For the two years of data collection combined there were 8,751 ESCs for 8,188 clients. These data were used in the analyses of treatment completion and retention, presented in Chapter VII, and in the analyses of AOD treatment outcomes, contained in Chapter IX.

The next two rows of the three Tables present information on recruitment materials sent by providers to UCLA/ISAP staff, enabling researchers to contact clients for the 3- and 9-month follow-up interviews. The *Informed Consent (ICF)* row in Table 3.1a reveals that

---

<sup>8</sup> As with the admission records, the ASI versions in the two software packages differ slightly. The DeltaMetrics software contains the ASI Lite Clinical Factors TOPPS II form (ASI Lite CF TOPPS II). In the Accurate Assessment software, the TOPPS II questions are contained in a separate module. In addition, the psychiatric section of the ASI is slightly different from the ASI Lite, which may alter the composite scores and clinical factor scores.

4,204 ICFs, corresponding to 4,070 clients were received in Year One, while the next row, labeled *Locator*, shows the number of locators received in that year (i.e., 4,100 forms for 3,970 clients). This is the pool from which UCLA/ISAP researchers selected clients for the 3- and 9-month follow-up interviews. Table 3.1b shows that in Year Two 3,898 ICFs were received for 3,500 clients and 3,898 locators were received for 3,601 clients. Finally, Table 3.1c shows that for the two years of data collection combined 8,226 ICFs were received for 7,780 clients and 7,998 locators were received for 7,571 clients.

Table 3.1a provides information on the three-month follow-up interviews and analyses in the next two rows. The row labeled “3-Month Follow-up Interviews” reveals that 2,824 interviews with 2,767 clients were conducted by UCLA/ISAP researchers. However, 147 of these interviews could not be analyzed because they did not have a matching admission record. The row labeled “3-Month & Adm” contains all records and individuals with a 3-month follow-up interview and either a matching Admission CA or Admission AA. This sample was used to conduct the service utilization and satisfaction analysis contained in Chapter VIII. The sample was maximized by including clients with either type of admission record. A total of 2,677 interviews, corresponding to 2,620 clients were analyzed.

Next, Table 3.1a provides information on the 9-month interviews and analyses. The row labeled “9-Month Follow-up Interviews” reports that 2,723 interviews were conducted by UCLA/ISAP researchers. However, similar to the 3-month interviews, 84 of these interviews could not be analyzed because they lacked a matching admission record and a matching admission ASI Lite assessment. The row labeled “9-Month & Adm” contains all records and individuals with a 9-month follow-up interview (which includes an ASI Lite assessment) and either a matching Admission CA or Admission AA, or an ASI Lite conducted at admission. This sample was used for all analyses related to treatment outcomes, which are presented in Chapters IX and X. Because pre- and post-admission measurements are needed to analyze outcomes, only clients with both an admission ASI Lite and a 9-month ASI Lite assessment could be included in these analyses.<sup>9</sup> This sample contains 2,639 clients.

*12-Month Cross-System:* The last row in Tables 3.1a contains all clients admitted into CalTOP from April 1, 2000 to June 6, 2001. Duplicate CalTOP ID's corresponding to the same Unique Client Identifier were removed. This sample was chosen to allow time to conduct a cross-system data linkage 12 months post-admission and to provide preliminary analyses of results. (Please see the section below entitled “Secondary Data Linkage and Analysis” for more details.).

---

<sup>9</sup> Those cases without a pre- and post-admission ASI Lite assessment appear as the percent missing in the outcomes analyses.

<b>Table 3.1a. Status of CalTOP Data Collection in Year One (4/1/00 – 5/31/01)</b>								
<b>Program and Follow-up Data by Modality</b>								
<b>Number of Providers: 25 ODF, 11 RES, 4 NT, 4 Mixed (44 Total)</b>								
Data Points	ODF		RES		NT		Total	
	Records	Clients	Records	Clients	Records	Clients	Records	Clients
Client Information	NA	4783	NA	1902	NA	395	NA	7080
Admission CA*	4554	4366	1964	1859	385	368	6903	6593
Admission AA*	280	259	NA	NA	NA	NA	280	259
Adm*	4834	4625	1964	1859	385	368	7183	6852
ASAM	4833	4610	2215	1828	389	375	7437	6813
ASI Lite	4202	4055	1871	1786	385	374	6458	6215
Adm* or ASI Lite	4948	4714	2022	1896	404	387	7374	6997
Episode Status Changes	3257	3105	1719	1626	134	127	5110	4858
Informed Consent (ICF)	2346	2277	1636	1582	222	211	4204	4070
Locator	2270	2201	1615	1565	215	204	4100	3970
3-Month Follow-up Interviews	1711	1680	1010	986	103	101	2824	2767
3-Month & Adm*	1621	1590	954	930	102	100	2677	2620
9-Month Follow-up Interviews	NA	1644	NA	960	NA	119	NA	2723
9-Month & Adm*	NA	1593	NA	927	NA	119	NA	2639
12-Month Cross-System Link	NA	4508	NA	1721	NA	316	NA	6545

Admission CA = California Admission form, including: (a) Unique Client Identifier (UCI); (b) California Alcohol and Drug Data System (CADDs); and (c) California Core Outcomes Questions (CCOQ). Admission AA = Accurate Assessment Admission form, including: (a) UCI; and (b) CCOQ. Adm = Admission CA or Admission AA.

<b>Table 3.1b. Status of CalTOP Data Collection in Year Two (6/1/01 – 5/31/02)</b>								
<b>Program Data by Modality</b>								
<b>Number of Providers: 24 ODF, 11 RES, 4 NT, 4 Mixed (43 Total)<sup>10</sup></b>								
Data Points	ODF		RES		NT		Total	
	Records	Clients	Records	Clients	Records	Clients	Records	Clients
Client Information	NA	4930	NA	2250	NA	397	NA	7577
Admission CA*	4894	4438	2455	2247	433	387	7782	7072
Admission AA*	97	87	NA	NA	NA	NA	97	87
Adm*	4991	4525	2455	2247	433	387	7879	7159
ASAM	5129	4649	2538	2144	430	385	8097	7178
ASI Lite	3623	3345	2074	1918	343	311	6040	5574
Adm* or ASI Lite	5317	4795	2484	2236	443	392	8244	7423
Episode Status Changes	1819	1652	1776	1636	46	42	3641	3330
Informed Consent (ICF)	2061	1813	1694	1473	267	214	3898	3500
Locator	1999	1844	1636	1513	263	244	3898	3601

Admission CA = California Admission form, including: (a) Unique Client Identifier (UCI); (b) California Alcohol and Drug Data System (CADDs); and (c) California Core Outcomes Questions (CCOQ). Admission AA = Accurate Assessment Admission form, including: (a) UCI; and (b) CCOQ. Adm = Admission CA or Admission AA.

<sup>10</sup> One of the 44 original providers did not participate in data collection during Year Two.

Table 3.1c. Status of CalTOP Data Collection in Years One & Two Combined (4/1/00 – 5/31/02)								
Program Data by Modality								
Number of Providers: 25 ODF, 11 RES, 4 NT, 4 Mixed (44 Total)								
Data Points	ODF		RES		NT		Total	
	Records	Clients	Records	Clients	Records	Clients	Records	Clients
Client Information	NA	9713	NA	4152	NA	792	NA	14657
Admission CA*	9448	8804	4419	4106	818	755	14685	13665
Admission AA*	377	346	NA	NA	NA	NA	377	346
Adm*	9825	9150	4419	4106	818	755	15062	14011
ASAM	9962	9259	4753	3972	819	760	15534	13991
ASI Lite	7825	7400	3945	3704	728	685	12498	11789
Adm* or ASI Lite	10265	9509	4506	4132	847	779	15618	14420
Episode Status Changes	5076	4757	3495	3262	180	169	8751	8188
Informed Consent (ICF)	4407	4175	3330	3146	489	459	8226	7780
Locator	4269	4045	3251	3078	478	448	7998	7571

Admission CA = The California Admission form, including (a) Unique Client Identifier (UCI), (b) California Alcohol and Drug Data System (CADDs), and (c) California Core Outcome Questions (CCOQ). Admission AA = The Accurate Assessment Admission form, including (a) UCI, and (b) CCOQ. Adm = Admission CA or Admission AA.

### Follow-up Rates for the 3- and 9-Month Interviews

Table 3.2 presents information on the follow-up rates for the 3- and 9-month post-admission interviews conducted by UCLA/ISAP staff. Of the 3,314 clients targeted for the 3-month follow-up, 86% were interviewed, 8% were either not found or are currently being tracked, 3% were incarcerated, 2% refused the interview when contacted, less than 1% were deceased, and less than 1% were not interviewed for other reasons. If subjects who could not be interviewed due to death, incarceration, deportation, language barrier, or inability to answer the questions are excluded, 90% of the eligible subjects were interviewed. Of the 3,715 clients targeted for the 9-month follow-up, 73% were interviewed, 20% are still being tracked, less than 1% were not found, 5% were incarcerated, less than 1% refused the interview when contacted, less than 1% were deceased, and less than 1% were not interviewed for other reasons. If subjects who could not be interviewed due to death, incarceration, deportation, language barrier, or inability to answer the questions are excluded, 78% of the eligible subjects were interviewed.

<b>Table 3.2. 3- and 9-month Follow-up Rates [as of 6/18/02]</b>								
	<b>3-month Follow-up</b>				<b>9-month Follow-up</b>			
	Targeted		Eligible		Targeted		Eligible	
	N = 3314	%	N = 3182	%	N = 3715	%	N = 3497	%
Interviewed*	2850	85.9	2850	89.5	2730	73.4	2730	78.0
Still Looking	103	3.1	103		743	20.0	743	
Refused	52	1.5	52		20	<1	20	
Not Located	177	5.3	177		4	<1	4	
Deceased	5	<1	0		29	<1	0	
Incarcerated	110	3.3	0		182	4.8	0	
Other**	17	<1	0		7	<1	0	

\*Numbers of clients interviewed are slightly higher than those reported in Table 3.1a as additional follow-up interviews were conducted among those admitted after 5/31/01.  
\*\*Other includes subjects not interviewed due to deportation, language barrier, or inability to answer the questions.

*Summary of Data Collection for Admissions and Follow-up*

In Year One of the CalTOP project, a total of 7,374 admissions were reported by participating provider sites, which represents 6,997 unique clients (some of whom have multiple admissions during this time period).<sup>11</sup> Three thousand seven hundred three (3,703) clients signed informed consent forms to be included in the follow-up study, 2,767 completed the 3-month interview,<sup>12</sup> <sup>13</sup>and 2,723 completed the 9-month interview.<sup>14</sup> Note that not all data elements were complete for all clients at each of the assessment points. In the two years of CalTOP data collection, a total of 15,618 admissions were reported by participating provider sites, which represents 14,420 unique clients.

A total of 3,715 clients entering treatment from April 3, 2000 through May 4, 2001 were placed in a pool to be located for follow-up. When the study received an extension, a total of 619 clients who entered treatment from October 18, 2001 through December 12, 2001 and had also agreed to participate in the follow-up study, were placed in a pool to be located. However, the 2,028 clients who entered treatment and agreed to participate in the follow-up between the end of the initial funding period and the beginning of the study's extension period (from May 5, 2001 through October 17, 2001) were not included in the follow-up study. In addition, another 2,631 clients who entered treatment and agreed to participate in the follow-up study after December 31, 2001 were excluded.

<sup>11</sup> As mentioned above, "admissions" count all unique admission forms and/or admission ASI Lite assessments because some clients lacked one or the other component of a complete admission data set.

<sup>12</sup> Fifty-seven (57) clients completed two 3-month interviews.

<sup>13</sup> Twenty-six (26) 3-month interviews were conducted after analyses of samples were finalized.

<sup>14</sup> Seven (7) 9-month interviews were conducted after analyses of samples were finalized.

## ***Secondary Data Linkage and Analysis***

UCLA/ISAP researchers developed relationships with officials from many state agencies to gain access to their databases. (An account of negotiations undertaken to obtain data for cross-system data linkage is contained in Attachment 1 of Chapter XI.) We received pre-admission data from the Department of Motor Vehicles (DMV), Department of Mental Health (DMH), Department of Justice (DOJ), and the Office of Statewide Health Planning and Development (OSHPD) prior to May 2002. A total of 6,545 clients (all admissions in Year One, from April 2000 to June 6, 2001) were included in cross-system data linkages with the DMV, DMH, and DOJ. In August 2002, UCLA/ISAP researchers requested post-admission data from DMV, DMH, and DOJ. All three agencies responded in time for UCLA/ISAP researchers to conduct analysis and include the results in this final report. Cross-system data linkage strategies and findings are contained in Chapter XI. In addition, these linked data also contributed to the cost and cost-offset analysis.

## ***Software Employed for Statistical Analyses***

Data management and statistical analysis were conducted in SAS, a widely used statistical program for complex data management and multivariate analysis developed by the SAS Institute. Statistical analyses include descriptive statistics (frequency, percentage, mean, correlations), comparative analysis (e.g., paired t-tests, ANOVA), regression models, and survival analysis. Detailed descriptions of analyses conducted for addressing specific research questions are provided in the respective chapters.

## **Methodological Limitations of the Study**

Several practical limitations were considered in interpreting the results of the CalTOP study. Although the major issues are described below, others that pertain to specific components of the study (e.g., service utilization) are detailed in the corresponding chapters of this report.

Clients under the age of 18, DUI-only clients, clients who dropped out of treatment prior to completing an assessment for treatment planning<sup>15</sup>, and detoxification clients have not been included in the study. Therefore, no inferences should be drawn from the data regarding these client populations.

A major goal of CalTOP was to test an OMS that requires county, provider, and client participation. Although initially UCLA/ISAP suggested selecting counties and providers randomly, it was decided to be infeasible due to cost and time limitations. Thus CalTOP included counties that had volunteered. As such, the generalizability of the study findings may be limited. However, comparisons of CalTOP clients with the state client population revealed much similarity. (For a detailed analysis, see Chapter VI.) Most importantly, it was not clear that CalTOP would be best served by using fully bias-free samples (defined in the most rigorous terms) of providers. The TOPPS II initiative implicitly endeavored to bring about system and program improvement by, in part,

---

<sup>15</sup> Not all provider sites have excluded clients who do not complete the assessment process from the CalTOP system.

identifying exemplary program, service, and process elements that can be shown to affect client outcomes in a beneficial and cost-effective manner. Using a sample of programs that may be "bias-free" could undermine the potential for discerning what positive program features are possible and how those features affect outcome. Arguments can be made in a similar vein for targeting programs that serve clients who accrue extreme social costs due to AOD use and for whom more successful treatment could result in substantial savings to society.

Furthermore, it should be emphasized that although participation in the study was ultimately voluntary, the process of selecting counties, providers, and clients included outreach efforts to educate all parties about the benefits of participation, to provide appropriate incentives, and to build a "climate of participation." This proactive and coordinated approach had been very effective in previous research efforts by ADP (e.g., CALDATA) and ISAP researchers (e.g., evaluation of the Los Angeles County treatment system, program surveys, and client data collection).

At the individual client level, outcomes based on cross-system databases effort can be biased due to failure to correctly match records across databases. We compared the cross-linked client data with the client self-reported data to inform the interpretation of outcomes results based on both types of data sources.

## **Comments**

CalTOP tested a state-of-the-art outcome monitoring system that was pilot tested within a dynamic and complex environment involving diverse treatment provider sites, counties, consultants, state and federal agencies and a university research center. Each of these stakeholder groups has its own organizational history and culture, agendas, structures, requirements/regulations, perspectives, and expertise. Hence, the implementation of CalTOP presented challenges as well as unique opportunities for all stakeholders to learn from one another in an effort to enhance and perfect an automated outcome monitoring system.

ADP officials have chosen to continue CalTOP after the TOPPS II grant and extension expired. The continuation includes minimal support for collection of an additional 500 follow-up interviews and continued efforts in cross-system data linkage. Meanwhile ADP is in the process of developing and assessing the feasibility, applicability, and utility of creating an ongoing statewide data collection system. Such systems, when fully implemented, provide answers to policy questions from federal, state, and local policy makers as well as community leaders about the performance and outcomes achieved by providing AOD services in California.

## References

- Anglin, M. D., & Hser, Y. (1990). Legal coercion and drug abuse treatment: Research findings and social policy implications. In James A. Inciardi (Ed.), *Handbook of Drug Control in the United States* (pp. 151-174) Westport, CT: Greenwood Press.
- Cohen, (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum.
- Lipsey, M. W. (1990). *Design sensitivity: statistical power for experimental research*. Newbury Park, CA: Sage Publications.
- McLellan, A. T., Alterman, A. I., Cacciola, J., Metzger, D. S. & O'Brien, C. P. (1992). A new measure of substance abuse treatment: Initial studies of the Treatment Services Review. *Journal of Nervous and Mental Disease*, 10(3),243-254.
- McLellan, A. T., Cacciola, J., Kushner, H., Peters, F., Smith, I, & Pettinati, H. (1992). The fifth edition of the Addiction Severity Index. Cautions, additions and normative data. *Journal of Substance Abuse Treatment*, 5, 312-316.
- McLellan, A. T., Luborsky, L., Woody, G. E., & O'Brien, C. P. (1980). An improved diagnostic evaluation instrument for substance abuse patients: The Addiction Severity Index. *Journal of Nervous and Mental Disease*, 168, 26-33.