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AUTHOR Devine, Patricia
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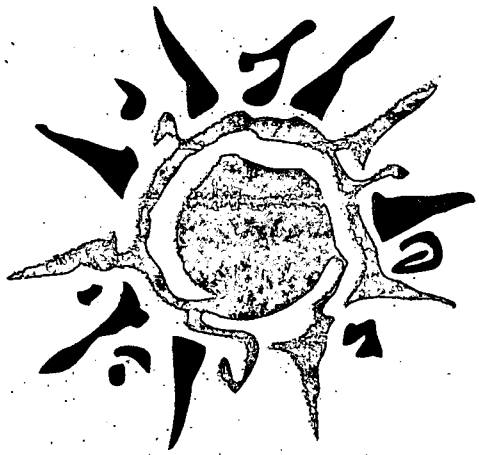
ABSTRACT

Based on a decade of evaluation experience, the Center for Substance Abuse Treatment (CSAT) has developed the Integrated Evaluation Methods (IEM) Package, a series of conceptual and methodological applications to enhance CSAT-funded evaluation activities. Products in the IEM Package are organized within an evaluation framework constructed on the basis of accumulated experiences among evaluation professionals. The framework is based upon evaluation strategies, structures, and approaches appropriate for substance abuse treatment evaluators and providers. This document is specifically aimed at supporting the design stage of the evaluation process. It provides a definition of logic models and discusses their use in treatment services planning and evaluation. It is intended to assist substance abuse treatment professionals to plan and conduct statistically valid, and, therefore, meaningful evaluation activities. An appendix entitled "Integrated Evaluation Methods Package: A Guide for Substance Abuse Treatment Knowledge-Generating Activities--Executive Summary" is included. (Contains 4 figures, 3 tables, and 10 references.) (MKA)

INTEGRATED EVALUATION METHODS



USING LOGIC MODELS IN SUBSTANCE ABUSE TREATMENT EVALUATIONS

July 1999

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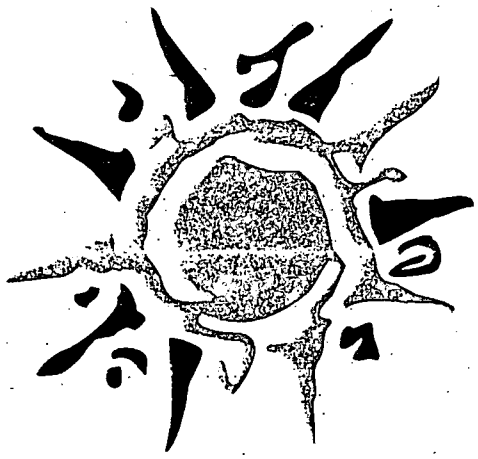

USING LOGIC MODELS IN SUBSTANCE ABUSE TREATMENT EVALUATIONS

Prepared by:

Patricia Devine

Caliber Associates
10530 Rosehaven Street, Suite 400
Fairfax, VA 22030

July 1999

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FOREWORD

Over the last 10 years the Center for Substance Abuse Treatment (CSAT) has accumulated a great deal of experience in substance abuse treatment evaluation implemented through coordinating centers, cross-site efforts, and national studies. The importance and value of integrating ongoing evaluation activity into a system for treating substance abuse problems is widely recognized by treatment providers and by CSAT. Also widely recognized, however, is that current evaluation generated knowledge and practice are often under-utilized, due in part to the lack of an integrated approach to capturing information with which to measure treatment outcomes and improve the treatment process. CSAT recognizes that such an integrated evaluation approach will more effectively support its knowledge generating activities.

Based on a decade of evaluation experience, CSAT has developed the Integrated Evaluation Methods (IEM) Package, a series of conceptual and methodological applications, including concept papers, technical assistance materials, and analytic tools, to enhance CSAT-funded evaluation activities. Products in the IEM Package are organized within an evaluation framework constructed on the basis of accumulated experiences among internationally known treatment service evaluation professionals. Thus, the framework is based upon evaluation strategies, structures and approaches appropriate for substance abuse treatment evaluators and providers. The framework follows a standard set of evaluation activities: planning, selecting a design, developing data requirements and collection instruments, collecting and analyzing the data, and reporting the evaluation findings. (A summary description of the IEM Package is contained in the Appendix to this document.)

This document, along with its two companion documents, *A Guide to Process Evaluation for Substance Abuse Treatment Services* and *A Guide to Selecting an Outcome Evaluation Design for Substance Abuse Treatment Evaluations*, is specifically aimed at supporting the design stage of the evaluation process. This document provides a definition of logic models and discusses their use in treatment services planning and evaluation. Taken together, these three documents are intended to assist substance abuse treatment professionals to plan and conduct scientifically valid, and therefore meaningful, evaluation activities.

Sharon Bishop
Director
National Evaluation Data and Technical Assistance Center

ACKNOWLEDGMENTS

This paper, together with the companion documents listed in the Appendix (the Integrated Evaluation Methods Package), was developed for CSAT by the National Evaluation Data and Technical Assistance Center (NEDTAC) under the guidance and direction of Ron Smith, Ph.D., Program Evaluation Branch, Office of Evaluation, Scientific Analysis, and Synthesis (OESAS). Dr. Herman Diesenhaus, former Team Leader, Scientific Analysis Team, OESAS, contributed many concepts that have been incorporated into the package. Charlene Lewis, Ph.D., former Deputy Director, OESAS, supported this and other associated efforts, with the result that state-of-the-art evaluation concepts were incorporated into many of CSAT's and SAMHSA's evaluation initiatives. Jerry Jaffe, M.D., former Director, OESAS, also contributed his breadth of experience in the substance abuse treatment and evaluation fields and his dedication to high quality treatment services evaluation and provided the national level leadership necessary for CSAT to promulgate these activities.

Caliber Associates was the prime contractor for NEDTAC in partnership with Computech, Inc.; the Lewin Group; Capital Consulting Corporation; the Center for Substance Abuse Research (CESAR), University of Maryland; the Alcohol Research Group (ARG), Public Health Institute; the Drug Abuse Research Center (DARC), University of California, Los Angeles; and the Urban Institute. Many people within the NEDTAC team contributed to this effort. These staff include Patricia Devine, Jacquelyn Lowery, Harriet Perrine, Marsha Morahan, Robin Walthour, and Donna Caudill. Contributions ranged from document development to editing and production, and all of these efforts were equally invaluable and greatly appreciated.

I. INTRODUCTION

The Center for Substance Abuse Treatment (CSAT) supports the integration of ongoing evaluation within substance abuse treatment activities so as to demonstrate treatment service effectiveness and to improve treatment services and their outcomes. To this end, CSAT recommends the use of state-of-the-art evaluation methods and tools in planning, designing, and implementing treatment services evaluations. This paper discusses one of these tools: the logic model. The logic model provides the linkage among all of the evaluation activities and ensures the integration of process and outcome evaluation results.

1. CONTEXT FOR THE LOGIC MODEL DOCUMENT

CSAT's major evaluation goals are to: (1) increase knowledge about substance abuse treatment services; (2) improve treatment services by applying knowledge gained through knowledge development and application (KD&A) activities; (3) develop analytic methods and approaches for use in knowledge-generating activities; and (4) develop substance abuse treatment analysis databases. To meet these goals, CSAT has been sponsoring KD&A initiatives including activities that focus on homelessness, marijuana use and treatment, managed care, women and violence, and opioid treatment, as well as the replicability of exemplary treatment approaches (e.g., methamphetamine treatment) and the evaluation of best practices for targeted populations (e.g., exemplary adolescent treatment).

CSAT's evaluation experiences have reinforced the fact that substance abuse treatment evaluation involves a standard set of tasks that generally occur in the following order:

- **Planning the evaluation**, which includes setting the evaluation goals and objectives that determine the overall parameters of the evaluation
- **Selecting the evaluation design**, which sets forth the overall strategy for establishing the evaluation questions, measurement approach, and generalizability of findings
- **Developing the data requirements**, which flow from the evaluation questions and measures and include SDU, clinician, cost, and client data
- **Developing data collection instruments**, which are based on the data requirements and are developed or selected from a standard inventory of instrumentation
- **Collecting the data**, which includes the development of data management processes and tools including quality control procedures, and collecting the data

- **Analyzing the data**, which involves developing an analysis plan and conducting multiple levels of comparison; the analysis process is governed by the analysis plan and intended products and target audience(s)

- **Reporting the evaluation findings**, which includes evaluation knowledge dissemination and application within field.

CSAT has directed the development of evaluation concepts, methods, and tools to support these evaluation tasks. The evaluation tasks and corresponding evaluation methods products are summarized in Exhibit I of the appendix to this document. As shown, the use of logic models in CSAT evaluations is part of the second stage in the evaluation process: selecting the evaluation design. A full discussion of the CSAT evaluation analytic framework and the other evaluation concepts and tools is presented in the concept paper: *Integrated Evaluation Methods: A Guide for Substance Abuse Treatment Knowledge Generating Activities.* This document, taken together with the other evaluation methods products in Exhibit I, is known as the Integrated Evaluation Methods Package. The documents that comprise the Package are being made available on the Caliber Associates NEDS contract Web site at http://neds.calib.com.

2. HOW THIS PAPER IS ORGANIZED

The paper is divided into six sections. Following the introduction, the paper provides a definition of logic models and discusses their use in treatment services planning and in treatment services evaluation. The paper concludes with a description and examples of using logic models to develop data maps that specify evaluation questions, measures, and variables.

II. DESCRIPTION OF THE LOGIC MODEL

The following paragraphs provide a definition of logic models and describe the logic model components and uses.

1. DEFINITION

A logic model is a descriptive, graphic representation of substance abuse treatment services and how they are supposed to work. A logic model includes a succinct, logical chain of statements that link substance abuse problems, treatment service interventions, and expected treatment outcomes. Logic models incorporate the theoretical relationships among the source or cause of the substance abuse problem, the design of the treatment service intervention, and the expected treatment results (i.e., outcomes). Logic models are conceptually straight-forward but, for substance abuse treatment, can be extremely complex because there are numerous, sometimes competing, theories as to the causes of substance abuse, the most effective treatment interventions, and the multiple short-term and long-term outcomes (Kumfer et al., 1993). For any given treatment approach and evaluation strategy, these issues can be identified and included in the logic model for that specific effort.

2. LOGIC MODEL COMPONENTS

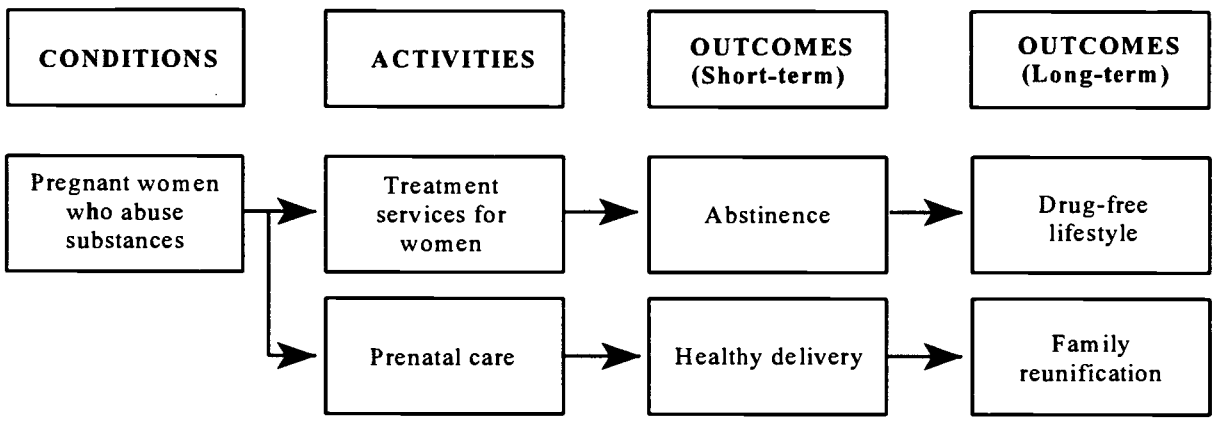
A logic model typically consists of four components:

- **Conditions and context** in which the substance abuse treatment services operate, including the target population characteristics, the community resources, and the regulations and policies that govern the treatment services operations
- **Activities** and services offered as part of the substance abuse treatment
- **Short-term outcomes** which are immediately expected to result from the treatment services
- **Long-term outcomes** (impacts) which are expected, and which should correspond to the treatment service goals.

The linkages for the conditions, activities, short-term outcomes, and long-term outcomes are the theoretical underpinnings which guide the treatment services design, the implementation, and the evaluation (Conrad et al., 1998).

Logic models are most effective when presented graphically because the graphic presentation clearly establishes the interrelationships of the four components. Logic models are typically a series of boxes in columns, one column each for the conditions, activities, short-term outcomes, and long-term outcomes. Horizontal lines reflect the interrelationships among the problem conditions, the treatment service activities, and the expected treatment outcomes. A simplified hypothetical logic model for a treatment service for pregnant women is illustrated in Exhibit II-1.

EXHIBIT II-1
EXAMPLE OF SIMPLIFIED LOGIC MODEL



3. USES OF LOGIC MODELS

There are numerous applications for logic model techniques; within the Federal evaluation environment, four applications predominate. These include: (1) Federal/funding agency grants management; (2) substance abuse treatment services design and management; (3) substance abuse treatment services evaluation; and (4) knowledge generation about substance abuse treatment effectiveness and identification of exemplary or best practices.

One of the assumptions underlying the IEM is that the use of logic models should be a key component in reviewing grant and cooperative agreement applications, monitoring projects, and designing and implementing evaluations of knowledge-generating initiatives. SAMHSA, including CSAT, specifies in the Guidance for Applicants (GFAs) that grant and cooperative agreement applicants include a logic model within the grant application. The logic model assists the technical review of the application and is then used by project officers to assess project implementation and the extent to which the project remains faithful to the project design. Project

logic models within a grant program also are used to determine the similarities and differences across projects as part of a program-wide evaluation (Conrad et al., 1998).

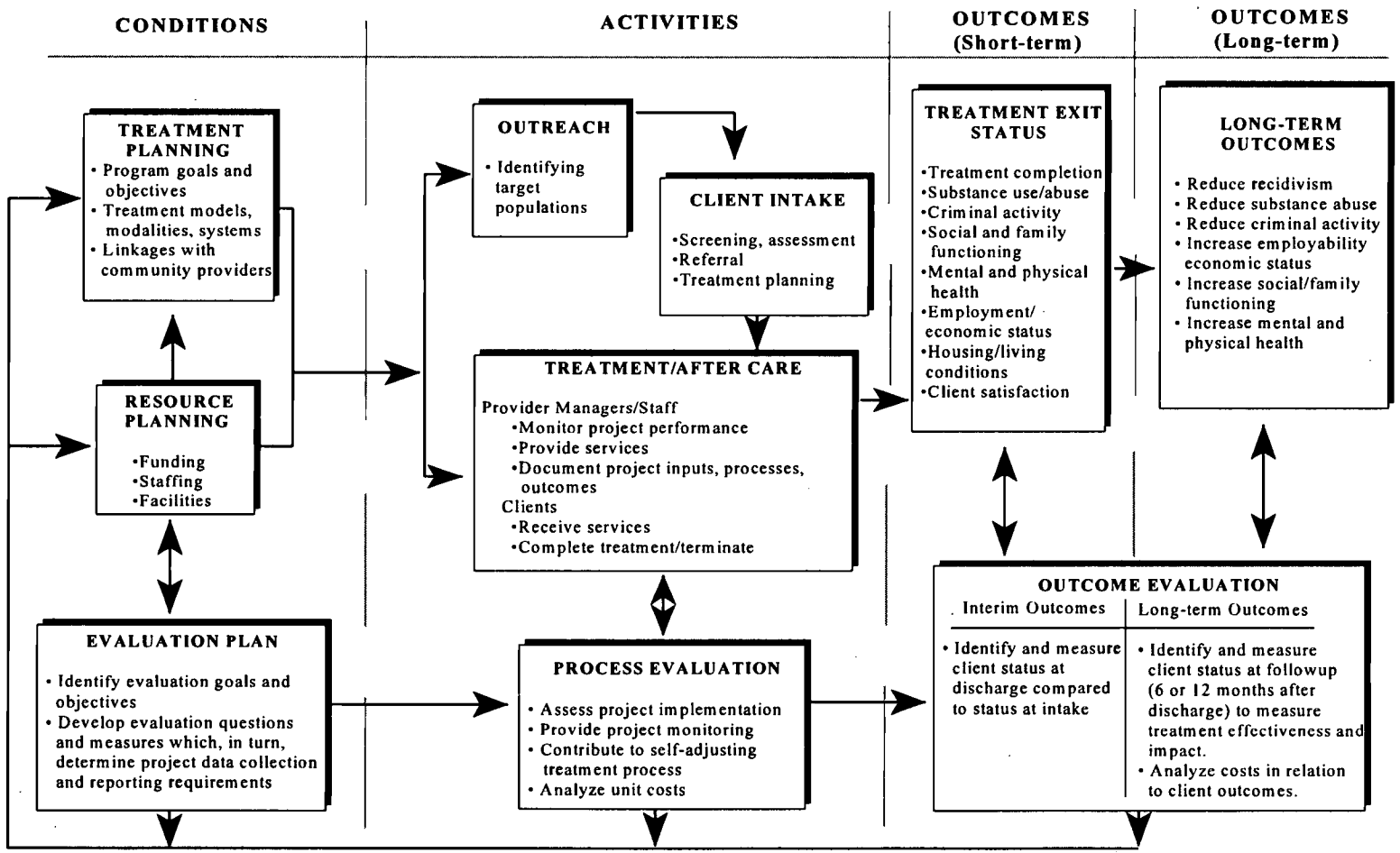
Logic models also assist substance abuse treatment services design and management and substance abuse treatment services evaluation. Traditionally, logic models are developed in advance of the treatment service design and the evaluation design. Integration Evaluation Methods (IEM) efforts expand on this traditional use by incorporating evaluation activities and products within the logic model process. When developed at the outset, the logic model ensures that the treatment services staff and the evaluation staff have a shared understanding of the purpose, components, and expected results of the treatment services, since the logic model:

- Clearly identifies treatment service goals, objectives, activities, and desired outcomes
- Clarifies assumptions and relationships between treatment services efforts and expected results
- Helps to specify what to measure through evaluation, when, and why
- Aids in determining how to link process evaluation measures and outcome evaluation measures
- Guides the assessment of underlying assumptions and facilitates self-correction of the treatment services (Kumpfer et al., 1993).

In addition, developing the treatment services logic model jointly by treatment services and evaluation staff assists in building consensus and a common understanding of treatment service provision. The value of the logic model is maximized since the design and development of treatment services and treatment service evaluation are fully coordinated.

The next two sections of this paper describe the value of logic models for treatment service planning and for treatment service evaluation planning. In fact, the development of logic models for treatment services and their evaluations must be coordinated. The interrelationship of the treatment services logic model and the evaluation logic model is diagrammed in Exhibit II-2.

EXHIBIT II-2
INTERRELATIONSHIP OF LOGIC MODELS FOR PLANNING TREATMENT SERVICES AND EVALUATION



III. USING LOGIC MODELS TO PLAN KNOWLEDGE-GENERATING TREATMENT SERVICES

Logic models are vital to the design and development of substance abuse treatment services and useful for services management and monitoring, and for knowledge-generating activities specific to a knowledge development or knowledge application activity. Since substance abusing behaviors are influenced by a variety of factors, treatment services typically attempt to address multiple factors, simultaneously. By assessing the conditions (including the target population), framing the problem statement(s), designing the treatment services, and specifying the expected outcomes, up front, the treatment services will be designed coherently. The logic model then supports the management of the treatment services by: (1) providing a tool to assess implementation so as to ensure that the services are implemented as planned; (2) maintaining the integrity of the treatment services to the design, overtime; and (3) monitoring treatment service costs.

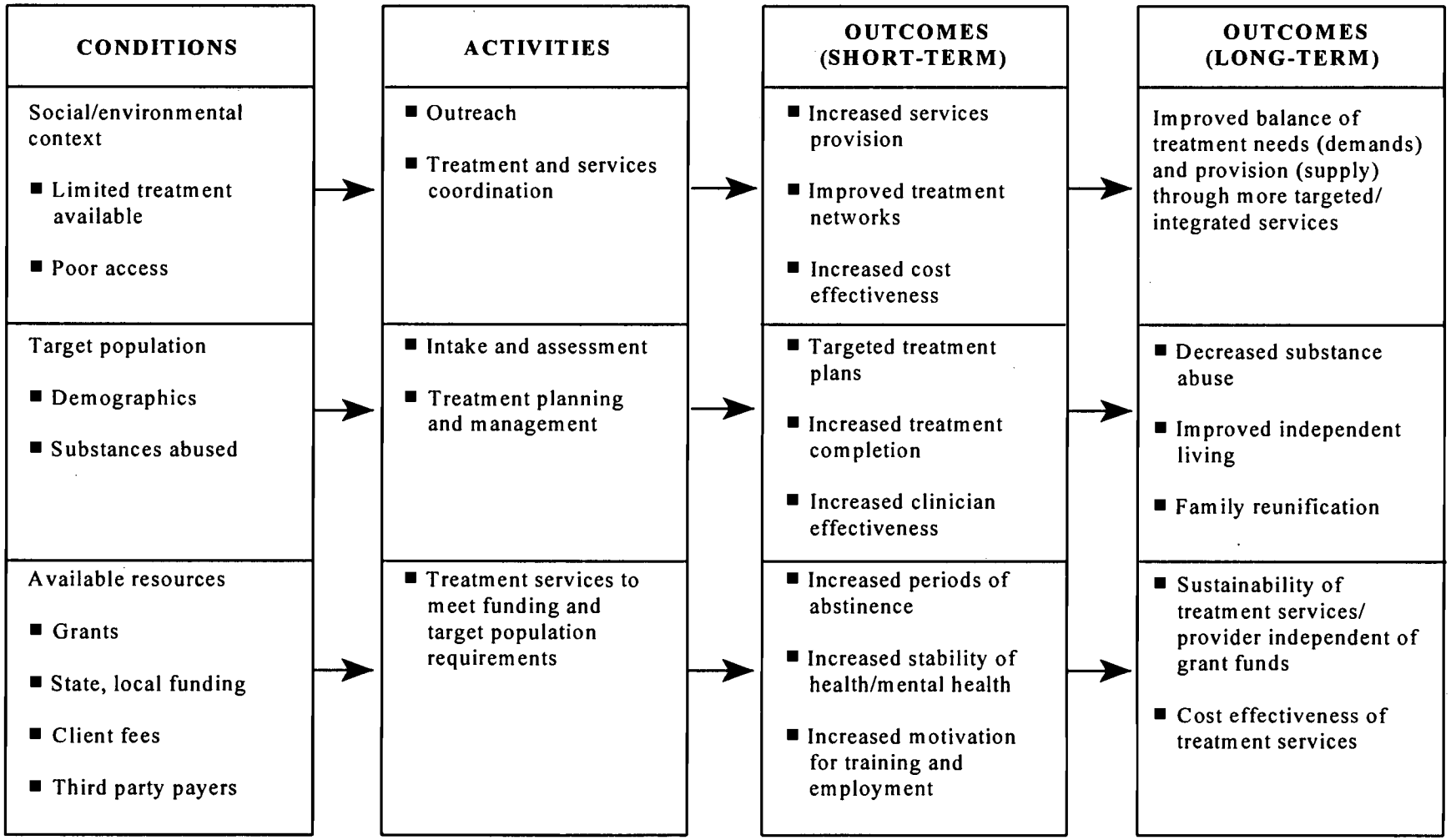
A framework for developing a treatment services logic model using treatment services for pregnant women as an example is presented in Exhibit III-1. The principles that guide the development of the treatment services logic model are described, below.

1. CONDITIONS AND CONTEXT FOR KNOWLEDGE-GENERATING TREATMENT SERVICES

In designing substance abuse treatment services, a first step is to identify the conditions for the treatment services, define the "problem" to be addressed by the treatment interventions and the knowledge-generating activity, and specify the assumptions on which the treatment services design will be based.

Conditions which may influence the type of treatment services that should be offered and/or that may affect the treatment services outcomes include demographic characteristics and the substances being abused. For example, gender has been found to influence treatment service access, entry, retention, and outcomes. It also influences the treatment services that are needed to maximize treatment success. Therefore, treatment services for women should include targeted outreach efforts and specific services that address women's unique medical and familial needs. This also is true for other treatment populations such as adolescents, injection drug users, and others. Also, different substance addictions respond differently to different treatments. For example, some addictions respond better to pharmacological treatment while others respond better to individual and group therapies. To ensure that treatment services are designed

EXHIBIT III-1
SAMPLE LOGIC MODEL FOR SUBSTANCE ABUSE TREATMENT SERVICES FOR PREGNANT WOMEN



appropriately, a literature review should inform the design based on tested theories or practices that have proved successful for a specific group or substance of abuse.

The problem statement should include behaviors and conditions that can be affected by the knowledge-generating treatment intervention. For example, lack of financial resources, or poverty, may be a factor in an individual's substance abuse but treatment services cannot treat poverty, per se. Rather, treatment services can provide education and job skills training which, in turn, can lead to improved financial conditions.

Another important condition for substance abuse treatment services is the availability of resources to fund the services and community resources to support the services. Federal, state, and other resources are generally available but may be reserved for specific populations and/or types of substances being abused. Also, existing community substance abuse treatment resources may suggest strategies for inter-agency networking, coordination, and cooperation. In addition, funding sources typically have associated regulations and policies which should be accounted for by the substance abuse treatment services design.

A needs assessment is frequently used to identify the type and extent of existing problems within the community, the services available, and the unmet needs. A needs assessment is a process to determine the need, which can be defined as the gap between the problem and existing resources to address the need (Linney et al., 1991).

2. KNOWLEDGE-GENERATING TREATMENT SERVICES ACTIVITIES

A substance abuse treatment services logic model requires the specification of two types of activities: **inputs** to the treatment activities and **service implementation**. Inputs include the specification of treatment service goals and objectives; identification of treatment models; establishment of linkages with other community resources; and the treatment resources including funding, staffing, facilities, and costs. Specifying the services implementation for the logic model includes a listing of the specific services to be provided. Again, these services should logically flow from the conditions (including target population needs), the project goals and objectives, and the treatment model being adopted (Devine et al., revised 1999).

3. KNOWLEDGE-GENERATING TREATMENT SERVICES OUTCOMES

The logic model should be carefully crafted so as to appropriately anticipate and distinguish between short-term outcomes and long-term outcomes. The long term or ultimate outcomes of the treatment services are sometimes shown in the logic model as the treatment service goals. However they are stated, it is advantageous to identify stages of desired outcomes and to differentiate between short-term and long-term treatment services outcomes.

For example, in residential treatment services designed to treat substance-abusing pregnant women, the short-term treatment outcome effects may be an increased community awareness, an increased number of mothers who receive prenatal care in the first trimester of the pregnancy, an increased number of healthy births, a reduced number of low birth weight babies, and a decreased number of women who use alcohol and drugs. The long-term outcomes or ultimate treatment service goals may be to reduce infant morbidity and mortality, reduce mental defects in newborns, maintain parental sobriety, and increase family reunification. In addition to short-term and long-term client outcomes, the knowledge-generating treatment service may be designed to have an impact on the community. For example, the location of the treatment service may be determined by the community's greatest need for additional treatment services. An expected short-term outcome may be a reduction in the number of people on treatment service waitlists. The longer-term community or systemic outcomes may be reduced health care costs since community residents are receiving substance abuse treatment services more promptly, and the outcome of the treatment service is reduced need for primary health care.

It is important to state outcomes with as much specificity as possible so that they can be measured. Outcomes should explain what problems the substance abuse treatment services are attempting to eliminate, and, where possible, should include time frames and conditions under which the outcomes are expected to occur. For example, a short-term outcome for the residential treatment services for women may be to maintain 120 consecutive days in the treatment services. A long-term outcome for these services may be to maintain 2 years of abstinence.

IV. USING LOGIC MODELS FOR EVALUATING KNOWLEDGE-GENERATING ACTIVITIES

Logic models are essential to interpreting evaluation findings. The evaluator needs a clear understanding of the treatment services goals, implementation sequences, and expected links among the treatment population characteristics, services, and expected benefits so as to accurately interpret the evaluation results (Wholey, 1979). An example of a logic model framework for use in developing a substance abuse treatment services evaluation is presented in Exhibit IV-1 and described below.

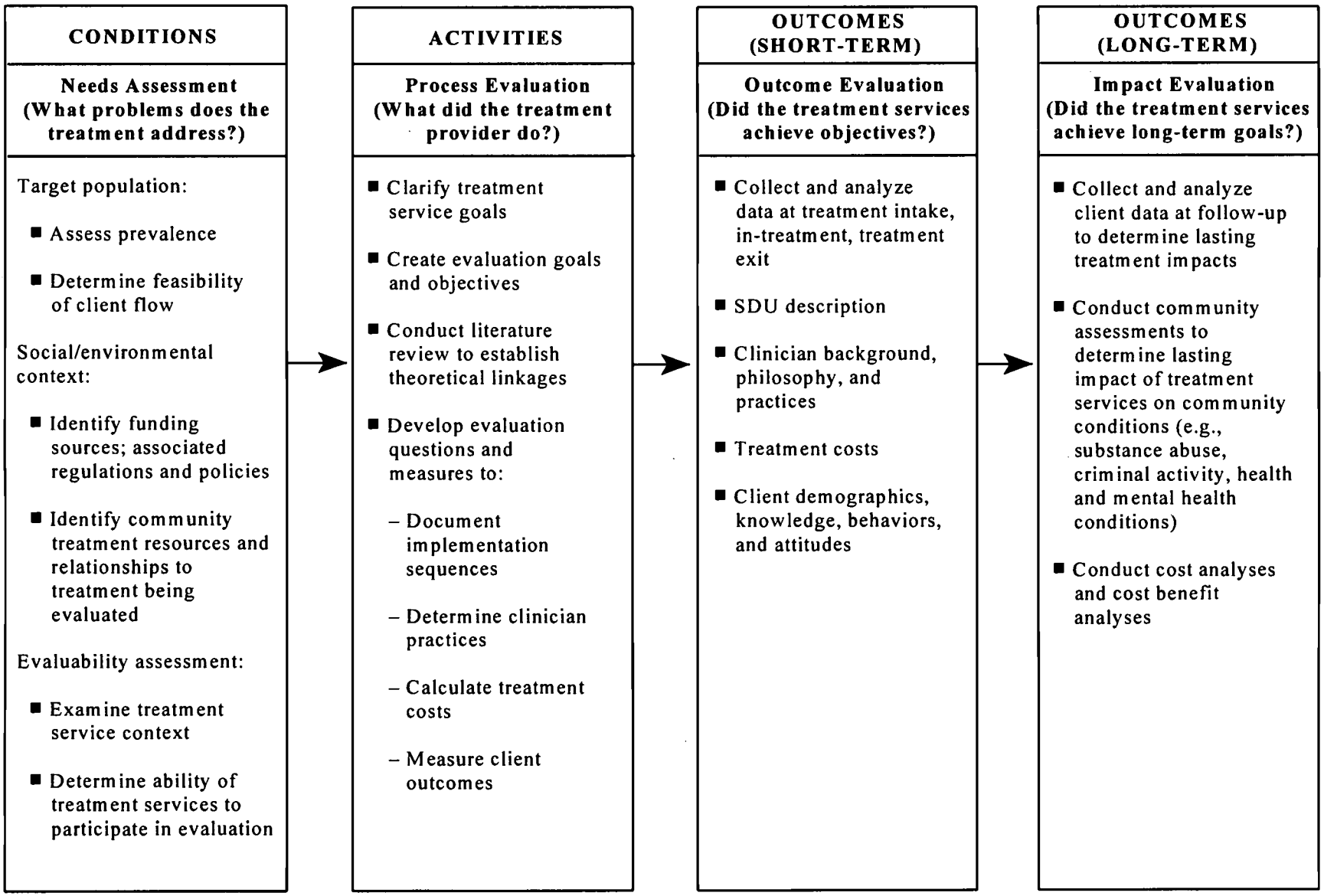
1. CONDITIONS AND CONTEXT FOR THE KNOWLEDGE-GENERATING EVALUATION

Knowledge-generating substance abuse treatment services evaluations must understand the environment in which the treatment services are operating and the new knowledge that can be obtained. The conditions component of the logic modeling process assists in planning the evaluation of the treatment population and the environment. First, the evaluation can assess the target population in terms of prevalence and treatment needs. Services for pregnant women, for example, would be under-utilized if offered in communities with few substance-abusing pregnant women. Further, an evaluation designed to use random assignment must assess prevalence so as to design the client flows for treatment and ensure that the client flows for the treatment alternatives will yield sufficient sample sizes.

The evaluation also must be fully informed about the local treatment resources, funding sources, and associated regulations and policies. Funding sources and/or alternative community treatment resources may influence the implementation of the treatment services being evaluated and the evaluation must take these confounding variables into account when interpreting the evaluation results.

Logic models also are useful in assessing the evaluability of substance abuse treatment services. Evaluability assessments are the pre-evaluation analyses that help to ensure that an evaluation will be technically feasible and capable of answering the evaluation and research questions important to decision makers. The evaluability assessment lays the groundwork for a successful evaluation by:

EXHIBIT IV-1
SAMPLE LOGIC MODEL FOR EVALUATION OF KNOWLEDGE-GENERATING TREATMENT SERVICES



- Establishing agreement with the treatment service provider and the evaluator on the hypothesized causal links between the treatment services design and the intended intermediate and long term outcomes

- Providing an organizing framework for measurement and data collection so as to ensure that all data necessary to test the hypotheses and meet decision-maker's needs will be collected

- Building consensus between the funder, the treatment director, the clinical director, and the evaluators on data collection procedures and ensuring that adequate data collection systems are in place or will be established.

During the evaluability assessment, the evaluator examines the context for the substance abuse treatment services and the evaluation to see if a rigorous, objective evaluation is possible and the logic modeling process supports this activity (Wholey, 1994; Conrad et al., 1998).

2. KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT SERVICES

The evaluation logic model supports the evaluation of the substance abuse treatment services activities in five ways: (1) clarifying treatment service goals; (2) identifying the underlying treatment theories; (3) providing a framework for organizing the process evaluation; (4) providing a framework for integrating the process and outcome analyses; and (5) ensuring the knowledge-generating goals and objectives are met.

Clarifying treatment service goals. Most substance abuse treatment services have multiple treatment goals. Logic models assist the evaluation process by identifying the treatment services goals that are most important to the evaluation and for which there are sound measurement methods. For knowledge-generating activities, the new knowledge to be gained is the primary treatment service goal.

Identifying underlying treatment theories. Many treatment services are developed based on the experiences of the treatment providers. Implicit in these treatment services, however, are underlying theories and hypotheses about the characteristics of the treatment population, the substances that are abused, and effective methods for addressing specific population and/or substance characteristics. An evaluation that is predicated on treatment theory or hypotheses will support more targeted measurement and/or the interpretation of evaluation findings within a theoretical construct (Orwin, 1998). The logic modeling process assists the knowledge-generating activity in identifying the underlying treatment services theory by defining

the assumptions and the linkages among the assumptions, treatment services activities, and the treatment services outcomes.

Providing the process evaluation framework. The logic model provides the framework for the process evaluation by delineating all of the treatment service elements that must be documented so as to fully understand the treatment. For knowledge-generating activities, a fully developed logic model describes the treatment services in detail and identifies the data that should and should not be collected as part of the process evaluation.

Providing the framework for integrating process and outcomes analyses. Similarly, the logic model provides the framework for integrating the evaluation analysis components. As demonstrated, the process evaluation measures the knowledge-generating treatment service activities while the outcome evaluation measures the treatment service short-term and long-term outcomes associated with the knowledge-generating activities. The analyses, however, are not conducted separately or in isolation of each other. Rather, the process evaluation analyses provides the context for interpreting the outcome results as well as a conduit for identifying the need to change the treatment design and/or the treatment activities. The outcome analysis provides "red flags" when short-term or long-term outcomes are different than expected. In addition, the process evaluation will provide critical variables and data that will need to be added to the outcome database for analysis.

Ensuring that the knowledge-generating goals and objectives are met. The CSAT KD&A program establishes the goals and objectives for the knowledge-generating treatment services. The logic model is useful to CSAT, as well as the other stakeholders, in ensuring that the overall CSAT goals and objectives are accomplished since the logic model is constructed on the basis of a logical sequencing of treatment services so as to achieve the goals and objectives.

3. KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT OUTCOMES

In addition to providing the framework for the process evaluation, the logic model guides the outcomes evaluation. First, the logic model clarifies the treatment services goals that are relevant to the treatment services outcomes, identifies measurable outcomes, and delineates the target population and the treatment interventions.

Second, if the control or comparison group to be used in the evaluation outcomes analysis is receiving alternative treatment services, the logic model is a critical tool to identify the similarities and differences between the treatment services being evaluated and the alternative treatment services. These differences in treatment service provisions form the basis for the expected differences between the treatment and comparison group differences (Conrad et al., 1998) and will shape the process and outcome evaluation designs.

V. USING LOGIC MODELS TO SPECIFY KNOWLEDGE-GENERATING EVALUATION MEASURES

The logic modeling process can be used to develop a framework for specifying the evaluation questions, measures, data sources/instruments, and data collection time points. Within the Integrated Evaluation Methods approach, this framework is called a data map, and its purpose is to identify and clarify the evaluation data requirements.

1. DATA MAP STRUCTURE AND UTILITY

A data map very clearly lays out the specifications for evaluation data and the data collection plans. The data map provides a bridge between the logic model and the data collection activities and establishes the infrastructure for the data analysis plans. It is used to show substance abuse treatment services staff the evaluation data requirements and the rationale for these requirements. Data maps provide a structured format to answer the primary, secondary, and tertiary questions that treatment providers most often ask the evaluation staff: "Why do we have to collect these data?" and "How will you use the data once they are collected?"

2. DATA MAP DEVELOPMENT

The five steps in developing a data map for a knowledge-generating activity include: (1) identifying the over-arching evaluation questions; (2) developing the secondary and tertiary evaluation questions; (3) identifying the measures needed to answer the primary, secondary, and tertiary evaluation questions; (4) identifying the data sources and instruments; and (5) determining the data collection time points.

A sample data map that parallels an IEM initiative is presented in Exhibit VI-1 at the conclusion of this paper. The sample data map in Exhibit VI-1 is designed to be used as a template for creating the evaluation plan for a knowledge-generating activity using the IEM package. Therefore, the following paragraphs describe the steps to creating a data map using the sample data map as an example. The sample data map is illustrative of the data mapping process; it is not intended to be comprehensive. In reality, the data map must be tailored to the specific knowledge-generating activity with the evaluation objectives and questions reflective of the specific activity.

2.1 Identifying Over-Arching Evaluation Questions

The over-arching evaluation questions are statements, in question form, that must ultimately be answered by the evaluation. These questions should be tied directly to the knowledge-generating activity goals and objectives and to the logical relationship (logic model structure) between the conditions, activities, and outcomes. Exhibit VI-1 demonstrates how the logic model structure guides the development of the over-arching questions:

- **Conditions** for establishing the knowledge-generating activity are identified and assessed by the basic, over-arching question: **What is the design for the knowledge-generating substance abuse treatment service?**

- **Activities** necessary for generating knowledge about the substance abuse treatment service are identified and assessed by the questions:

  - **How was the knowledge-generating substance abuse treatment service implemented?**

  - **How does the treatment service relate to the original design?**

  - **Who did the knowledge- generating substance abuse treatment service serve?**

  - **What were the resource requirements and costs of the knowledge-generating substance abuse treatment service?**

- **Outcomes**, both short-term and long-term, are assessed by answering the question: **What were the knowledge-generating substance abuse treatment service outcomes?** and long-term outcomes are further assessed by answering the question: **What is the relationship between the costs and outcomes of the knowledge-generating substance abuse treatment service?**

As shown in the example, the over-arching questions are presented at the top of each sub-section in the matrix. Again, these basic, over-arching questions, while germane to all knowledge-generating treatment services, should be substantively adapted to the specific knowledge-generating goals, objectives, and study questions.

2.2 Defining Knowledge-Generating Secondary Evaluation Questions

Secondary evaluation questions are precise, measurable statements (in question format) of what the evaluation intends to achieve and are based on the over-arching evaluation questions

and on the treatment service objectives. Secondary evaluation questions provide a way to incrementally measure achievement of the knowledge-generating goals and objectives and provide a linkage to the overarching evaluation measures. Secondary evaluation questions address the substance abuse treatment services effort, or process, and cover treatment services operations, service delivery, and use of resources. Secondary evaluation questions also address treatment effectiveness, or outcomes, and assess the treatment services' impact on clients and/or service delivery network. Evaluation objectives and questions should be stated in terms that can be measured. For example, to answer the question "What is the appropriate length of treatment in terms of outcomes for different individuals and family units?" measures for treatment delivery and treatment outcomes are needed. (Tertiary evaluations reflect a further refinement and specification of the evaluation process. These same "rules" apply to the development of tertiary evaluation questions.)

2.3 Identifying Evaluation Measures

Once the secondary (and tertiary) evaluation questions are defined, the measures needed to answer the questions can be specified. Collectively, the evaluation measures provide information on treatment service design, implementation, operations, service delivery, costs, client behavior, client attitudes, and client experiences. These measures require information about the service delivery unit; the clinician background and therapeutic approach; treatment costs; and client characteristics, behaviors, and attitudes. Examples of measures needed to answer the primary, secondary, and tertiary evaluation questions are specified in Exhibit VI-1. This process supports the ultimate determination of whether the treatment services goals are met. Each of the measures identified in the sample data map are further defined and operationalized with data definitions and response categories from the IEM companion document: *Minimum Evaluation Data Set: Core Data Lists*. (See the appendix to this document.)

2.4 Identifying Data Sources/Instruments

Substance abuse treatment services data are typically obtained from the service delivery unit (including the provider director, clinician, and financial management staff) and from the clients. Systems level data about the environment in which the treatment services operate are obtained from linkage partners, collaborating agencies, and other community agencies or community-based data sources. For each of the data sources, appropriate data collection instruments are necessary and may include survey formats, interview formats, and protocols to abstract records-based data and databases (criminal activity, employment, etc.). Examples of

data sources and types of instruments are presented in Exhibit VI-1. The data sources/instruments listed in the sample data map (Exhibit VI-1) are more fully described and discussed in the IEM companion document: *Guide to Process Evaluation for Substance Abuse Treatment Services*. (See the appendix to this document.)

2.5 Determining Data Collection Time Points

Generally, systems and SDU data are collected at baseline, quarterly, and annually; and client-level data are collected at specified intervals. The IEM advocates the collection of client-level data at four time points, including: intake (treatment entry), within treatment, treatment exit, and at follow-up (3, 6, 12, and/or 18 months following treatment exit). It is recognized, however, that data collection activities are the most resource intensive of all evaluation components and the ability of the evaluation to conform to the IEM recommended approach is directly linked to the evaluation budget and resources.

An important role for the evaluation planning process is the capability to adjust the evaluation components, as needed, when faced with new information. Thus, after the data map has been developed, the knowledge-generating evaluation questions will probably need to be re-examined to clarify and finalize the evaluation plan.

VI. SUMMARY

The list below provides a summary of recommended activities to aid in the development of logic models:

- Clarify the knowledge-developing substance abuse treatment services from the perspective of the KD or KA program, treatment services managers and staff, evaluators, and other key stakeholders

- Explore treatment services "reality," including the plausibility and measurability of treatment-site services goals and objectives in light of the knowledge-generating treatment goals and objectives

- Involve intended users of evaluation information to determine the knowledge-generating evaluation priorities and intended uses of evaluation information on substance abuse treatment services performance

- Apply logic model techniques to knowledge-generating substance abuse treatment service planning and implementation and to evaluation planning and implementation

- Apply logic model techniques to data map development to ensure that the specification of knowledge-generating evaluation questions, measures, and variables are linked to the treatment goals and objectives and the knowledge-generating goals and objectives.

The development of logic models is critical to ensuring that the knowledge-generating substance abuse treatment services evaluation can be carried out in a way that will yield accurate and useful information to document treatment effectiveness and improve treatment services and activities. A review of the activities listed above shows the close relationship between the development of the logic models, planning the treatment services, and planning the treatment services evaluation. Applying the ideas presented in this paper will improve the process of substance abuse treatment services evaluation that support knowledge generation and lead to the acquisition of new knowledge so as to identify exemplary treatment services and to realize systemic and treatment services improvements.

EXHIBIT VI-1

SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
Q1. What is the design for the knowledge-generating substance abuse treatment service?					
What is the context for the substance abuse treatment service?	■ Funding sources ■ Service delivery area ■ Community economic characteristics ■ Specific substance abuse problems ■ Other related services in the area	■ Needs assessments ■ Process evaluation interviews ■ Routine management reports	✓ ✓	 ✓ ✓	 ✓ ✓
What were the origins of the treatment service?	■ Description of previous, similar treatment services ■ Evidence of previous service success ■ Similarities, differences to previous service ■ Needs assessment results	■ Needs assessments ■ Process evaluation interviews ■ Routine management reports	✓ ✓	 ✓ ✓	 ✓ ✓
What is the treatment service rationale, goals, and objectives?	■ Program/treatment theory ■ Treatment service goals and objectives ■ Target population characteristics ■ Special needs of target populations	■ Needs assessments ■ Treatment literature ■ Process evaluation interviews ■ Routine maintenance reports ■ SDU instrument	✓ ✓ ✓ ✓	 ✓ ✓ 	 ✓ ✓ ✓
What was the treatment service development process?	■ Activities and staff involved in development process ■ Treatment service design logic model ■ Problems experienced and resolution ■ Key decisions	■ Needs assessments ■ Process evaluation interviews ■ Routine management reports ■ SDU instrument ■ Clinician Background & Practice	✓ ✓ ✓ ✓	 ✓ ✓ 	 ✓ ✓ ✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
Q2. How was the knowledge-generating substance abuse treatment service implemented? How does the treatment service relate to the original design?					
What was the implementation process?	■ Length of time treatment service in operation ■ Implementation process ■ Changes to treatment service design ■ Factors that facilitated effective implementation ■ Factors that impeded effective implementation	■ Process evaluation interviews ■ Routine management reports ■ SDU instrument ■ Clinician Background & Practice	✓ ✓ ✓	✓ ✓ 	✓ ✓ ✓ ✓
How do clients gain access to the treatment service?	■ Process that facilitates client access ■ Description of Centralized Intake Unit (if applicable) ■ Match between treatment services and client needs ■ Waiting lists—length of time	■ Process evaluation interviews ■ Routine management reports ■ SDU instrument ■ Clinician Background & Practice	✓ ✓ ✓	✓ ✓ 	✓ ✓ ✓ ✓
What are the linkages with the community and other agencies?	■ Relationships with other agencies ■ Impact on treatment services of other agency relationships ■ Client referrals and referral sources	■ Process evaluation interviews ■ Routine management reports ■ SDU instrument ■ Clinician Background & Practice	✓ ✓ ✓	✓ ✓ 	✓ ✓ ✓ ✓
What is the treatment service organization, staffing, and management?	■ Organizational structure ■ Steering committee characteristics ■ Treatment staff characteristics ■ Staff development efforts ■ Staff recruitment, turnover, vacancy rates ■ Efforts to improve staff retention ■ Staff morale ■ Information flow within and outside the organization ■ Nature of information collected and uses ■ Maintenance of wait lists ■ Treatment quality assurance procedures	■ Process evaluation interviews ■ Routine management reports ■ SDU instrument ■ Clinician Background & Practice	✓ ✓ ✓	✓ ✓ 	✓ ✓ ✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
What are the treatment service components?	■ Treatment service components ■ Number clients receiving specific treatment components ■ Number and type of under-utilized services ■ Number and type of over-utilized services ■ Relationship of treatment services to goals, objectives ■ Treatment services for children; collaterals ■ Characteristics of treatment service components ■ Process for treatment planning and exit ■ Number and type of ancillary services ■ Planned length of stay; actual length of stay ■ Expected outcome measures; data collected ■ Evaluation activities	■ Process evaluation interviews ■ Routine management reports ■ SDU instrument ■ Clinician Background & Practice	✓ ✓ ✓	✓ ✓ 	✓ ✓ ✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
Q3. Who did the knowledge-generating substance abuse treatment service serve?					
What are the characteristics of the target population?	■ Target population characteristics – Demographics – Drug/alcohol use – Family and living conditions – Education, employment, income – Criminal/juvenile justice system involvement – Prior substance abuse treatment – Mental/Physical health and other services – Abuse history – High-risk behaviors ■ Characteristics of people seeking treatment (Same as above)	■ Needs assessments ■ Process evaluation interviews ■ Quarterly Progress Reports ■ SDU instrument ■ Clinician Background & Practice	✓ ✓ ✓ ✓	 ✓ ✓ 	 ✓ ✓ ✓ ✓
What are the characteristics of the treatment service clients?	■ Client characteristics – Demographics – Drug/alcohol use – Family and living conditions – Education, employment, income – Criminal/juvenile justice system involvement – Prior substance abuse treatment – Mental/Physical health and other services – Abuse history – High-risk behaviors ■ Numbers who enter, leave, complete treatment	■ Grant applications ■ Process evaluation interviews ■ Quarterly Progress Reports ■ SDU instrument ■ Clinician Background & Practice ■ Client Intake Instrument ■ Client In-treatment Instrument ■ Client Treatment Exit Instrument	✓ ✓ ✓ ✓	 ✓ ✓ ✓ ✓ ✓	 ✓ ✓ ✓ ✓ ✓ ✓ ✓
How do the treatment service client characteristics compare with the target population?	■ Comparison of target and treatment populations	■ Needs assessments ■ SDU records	✓ ✓	✓ ✓	✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
Q4. What were the resource requirements and costs of the knowledge-generating substance abuse treatment service?					
What were the quarterly revenues and costs for the substance abuse treatment service?	■ Annual revenues by category – Federal grants – State grants – Local grants – Third party payments – Client fees – Other ■ Quarterly expenditures by category – Personnel, fringe – Equipment – Supplies – Food – Insurance – Travel – Contractual—external – Evaluation—external – Alteration/renovation – Rent – Indirect – Other ■ Year to date expenditures by category (Same categories)	Substance Abuse Treatment Costs Analysis and Allocation Template (SATCAAT)	✓	✓	✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
What were the quarterly allocations of costs to services?	■ Percent of total personnel cost of: – Initial assessment/intake – Medical examination – Psycho-social examination – Individual/group substance abuse counseling – Individual/group mental health counseling – HIV testing/counseling – Medical/diagnostic services – Housing/food – Records management – Clinical case management – Networking/outreach – Child care services – Staff education – Client education – Client transportation – Program evaluation – Other	Substance Abuse Treatment Costs Analysis and Allocation Template (SATCAAT)	✓	✓	

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
What were the annual allocations of costs to services?	■ Percent of total personnel cost of: – Medical examination – Psycho-social examination – Individual/group substance abuse counseling – Individual/group mental health counseling – HIV testing/counseling – Medical/diagnostic services – Housing/food – Records management – Clinical case management – Networking/outreach – Child care services – Staff education – Client education – Client transportation – Program evaluation – Other	Substance Abuse Treatment Costs Analysis and Allocation Template (SATCAAT)	✓		✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS			
			Pre	During	Exit	Post
Q5. What were the knowledge-generating substance abuse treatment service outcomes?						
What were the retention rates for the treatment service clients?	■ Number and percent of clients completing and not completing treatment ■ Characteristics of these clients ■ Average length of stay (LOS) ■ Percentage of completions (actual vs planned LOS) ■ Retention rates per treatment population characteristics ■ Retention rates per treatment modality ■ Percentage of clients participating in aftercare ■ Factors associated with treatment completion and non-completion	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
What are the characteristics of the clients' substance use? In what ways did the clients' substance use change?	■ Use of specific drugs (including nicotine, alcohol), ever ■ Number of days used, last 30 days ■ Frequency of use, past 30 days ■ Most common route of administration, past 30 days ■ Combination of drugs used, at same time, past 30 days ■ Age first used ■ Current diagnosis of alcohol problem (DSM-IV) ■ Current diagnosis of drug problem (DSM-IV)	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS			
			Pre	During	Exit	Post
What are the clients' demographic characteristics?	■ Gender ■ Age ■ Ethnicity ■ Race ■ Pregnancy status ■ Sexual orientation ■ Veteran status ■ Primary language spoken	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
What are the characteristics of the clients' social and family relationships? In what ways have these relationships changed?	■ Current marital status ■ Number of children, under age 18 ■ Number of persons with whom client currently lives ■ Current residence--type ■ Currently living with substance abuser ■ Problems experienced with family, fiends, coworkers	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS			
			Pre	During	Exit	Post
What are the clients' education, employment, income status? In what ways have these statuses changed?	■ Currently attending school/training ■ Highest level of education completed ■ High school diploma or GED ■ Current employment status ■ Weeks unemployed ■ Work training program participation ■ Largest household income source ■ Pre-tax legal annual household income ■ Pre-tax individual income, past 3 months ■ Days that substance use caused missed work	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
What are the clients' current criminal/ juvenile justice status? In what ways have these statuses changed?	■ Number of times clients arrested, ever; last 3 months ■ Reasons for arrests ■ Number of times clients committed crime ■ Crime committed ■ Number of convictions, ever; last 3 months ■ Currently serving sentence ■ Currently awaiting charges, sentence, diversion ■ Number of times incarcerated/detained ■ Number of days incarcerated/detained, last 3 months ■ Number of offenses committed, last 3 months ■ Member of gang, ever; last 3 months ■ Most recent activity as gang member	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS			
			Pre	During	Exit	Post
What physical/mental health problems have the clients experienced? What services have these clients received? What have been the changes in the clients' physical/mental health?	■ Significant physical/mental health symptoms, ever; last 3 months ■ Physical/mental health assessment, last 3 months ■ Number, type physical/mental health services received, last 3 months ■ Physical/mental health problems currently being treated ■ Substance abuse treatment history	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
What types of abuse have the clients' experienced? In what ways have these abuse experiences changed?	■ Physical abuse, ever; last 30 days ■ Age first physically abused ■ Source of physical abuse ■ Sexual abuse, ever; last 30 days ■ Age first sexually abused ■ Source of sexual abuse ■ Emotional abuse, ever; last 30 days ■ Age first emotionally abused ■ Source of emotional abuse	■ Client Intake Instrument ■ Client In-Treatment Instrument ■ Client Treatment Exit Instrument ■ Client Follow-up Instrument ■ Adolescent Intake Instrument ■ Adolescent In-Treatment Instrument ■ Adolescent Treatment Exit Instrument ■ Adolescent Follow-up Instrument ■ Child Intake Instrument ■ Child In-Treatment Instrument ■ Child Treatment Exit Instrument ■ Child Follow-up Instrument	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS			
			Pre	During	Exit	Post
What high-risk behaviors have the clients exhibited? In what ways have the high-risk behaviors changed?	■ Injecting drugs ■ Exchanged sex for drugs or money ■ Shared needles, cookers, other works ■ Had unprotected/unsafe sex ■ Tested for HIV at least 6 months following unprotected sex	■ Client Intake Instrument	✓	✓	✓	✓
		■ Client In-Treatment Instrument	✓	✓	✓	✓
		■ Client Treatment Exit Instrument	✓	✓	✓	✓
		■ Client Follow-up Instrument	✓	✓	✓	✓
		■ Adolescent Intake Instrument	✓	✓	✓	✓
		■ Adolescent In-Treatment Instrument	✓	✓	✓	✓
		■ Adolescent Treatment Exit Instrument	✓	✓	✓	✓
		■ Adolescent Follow-up Instrument	✓	✓	✓	✓
		■ Child Intake Instrument	✓	✓	✓	✓
		■ Child In-Treatment Instrument	✓	✓	✓	✓
		■ Child Treatment Exit Instrument	✓	✓	✓	✓
		■ Child Follow-up Instrument	✓	✓	✓	✓

EXHIBIT VI-1 (CONTINUED)
SAMPLE DATA MAP FOR KNOWLEDGE-GENERATING SUBSTANCE ABUSE TREATMENT EVALUATION

EVALUATION QUESTIONS	EVALUATION MEASURES/VARIABLES	DATA SOURCE/INSTRUMENT	DATA COLLECTION TIME POINTS		
			Baseline	Quarterly	Annually
Q6. What is the relationship between the costs and outcomes of the knowledge-generating substance abuse treatment service?					
What are the costs, benefits, and the ratio between costs and benefits of the knowledge-generating substance abuse treatment service?	■ Monetary values of the treatment service outcomes ■ Relationships between costs and treatment outcomes ■ Benefit-cost ratio for substance abuse treatment ■ Relative costs and benefits compared to other services ■ Non-monetary benefits that should be considered ■ Cost offsets of outcomes	Derived from data collected to address Questions 1 - 5			✓
What are the costs, effectiveness values, and the ratio of the costs and effectiveness of the knowledge-generating substance abuse treatment service?	■ Value of the treatment service effectiveness ■ Relationships between costs and treatment effectiveness ■ Effective-cost ratio for substance abuse treatment ■ Relative costs and effectiveness compared to other services ■ Non-monetary benefits that should be considered ■ Cost offsets of outcomes	Derived from data collected to address Questions 1 - 5			✓

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REFERENCES

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APPENDIX:
INTEGRATED EVALUATION METHODS PACKAGE:
A GUIDE FOR SUBSTANCE ABUSE TREATMENT
KNOWLEDGE-GENERATING ACTIVITIES—EXECUTIVE SUMMARY

APPENDIX:
INTEGRATED EVALUATION METHODS PACKAGE:
A GUIDE FOR SUBSTANCE ABUSE TREATMENT
KNOWLEDGE-GENERATING ACTIVITIES—EXECUTIVE SUMMARY

Since its inception, the Center for Substance Abuse Treatment (CSAT) has provided Federal leadership to improve substance abuse treatment accessibility, effectiveness, and efficiency. CSAT's mission and activities have evolved from directly supporting treatment services to supporting knowledge-generating activities. This evolution is evident in the current Substance Abuse and Mental Health Services Administration policy on evaluation as described in *Evaluation Policy*, SAMHSA, 1995.

The need for an integrated model of evaluation and planning at SAMHSA is presented in "Evaluation in the Substance Abuse and Mental Health Services Administration," *Evaluation and the Health Professions*, by Marsh, Jansen, Lewis, & Straw, 1996. CSAT also supports site-specific, cross-site, and national evaluations that have provided experience with a wide array of evaluation design and implementation methods. These experiences further supported the need for an integrated evaluation strategy and led to the development of a comprehensive set of evaluation products, including concept papers, technical assistance (TA) materials, and analytic tools. Collectively, these products are referred to as the Integrated Evaluation Methods (IEM) Package. The IEM Package organizes these products within an evaluation framework that is designed to support CSAT knowledge development and application goals. The evaluation framework itself was constructed on the basis of accumulated experiences among internationally known treatment service evaluation professionals. The IEM Package reflects and incorporates evaluation experiences gained over the past decade.

Evaluation Framework and the Integrated Evaluation Methods Package

National evaluation experiences have reinforced the fact that substance abuse treatment evaluation involves a standard set of tasks that generally occur in the following order:

- **Planning the evaluation/knowledge-generating activities**, which includes selecting the substance abuse treatment issue, identifying the theoretical foundation for the intervention, determining knowledge development program goals and implementation approach, and setting the evaluation goals and objectives that determine the overall parameters of the evaluation

- **Selecting the evaluation design**, which sets forth the overall strategy for establishing the process and outcome evaluation questions, measurement approach, and generalizability of findings

- **Developing the data requirements**, which flow from the evaluation questions and measures and include: SDU, clinician, cost, and client data

- **Developing data collection instruments**, which are based on the data requirements and are developed or selected from an integrated inventory of instrumentation

- **Collecting the data**, which includes developing data management processes and tools (including quality control procedures) and conducting the data collection activities

- **Analyzing the data**, which involves multiple levels of comparison and is governed by an analysis plan

- **Reporting the evaluation findings**, which includes evaluation knowledge dissemination and application within the field.

The evaluation process outlined above provided a framework for the development of products related to these evaluation concepts and methods. Taken together, those products comprise the IEM Package.

Integrated Evaluation Methods Products

CSAT requested the development of a series of evaluation concept papers, TA materials, and tools to support and operationalize each phase in the evaluation of substance abuse treatment knowledge-generating activities. These items are included in the IEM Package. The concept papers are based on theoretical evaluation research constructs that have been adapted to substance abuse treatment services evaluation and knowledge-generating activities. The concept papers primarily support the evaluation planning phase and address such topics as the self-adjusting treatment evaluation model, cost analyses, and performance measurement. The TA materials and tools include specific evaluation methods that have direct applicability to substance abuse treatment knowledge-generating activities. The concept papers and TA materials that constitute the IEM Package are listed and briefly described in Exhibit I.

EXHIBIT I
EVALUATION FRAMEWORK AND INTEGRATED EVALUATION METHODS PACKAGE

EVALUATION FRAMEWORK	INTEGRATED EVALUATION METHODS PRODUCTS
1. Planning the evaluation/ knowledge-generating activities	■ **Integrated Evaluation Methods: A Guide for Substance Abuse Treatment Knowledge Generating Activities:** Concept paper that describes the development of an evaluation framework, evaluation concepts, and TA materials to support the framework. ■ **Self-Adjusting Treatment Evaluation Model:** Concept paper that describes an approach for integrating evaluation findings within treatment operations so as to adjust and improve service delivery. ■ **Building Team Capability to Fully Implement and Utilize the Self-Adjusting Treatment Evaluation Model:** Concept paper to assist treatment providers in building capabilities to integrate the self-adjusting treatment model within day-to-day operations and service delivery. ■ **Adding "Value" to CSAT Demonstrations:** The What, How and Why of Cost Analysis: Concept paper on the need for and types of cost analyses for CSAT demonstrations and knowledge-generating activities. (The Lewin Group) ■ **Performance Measurement for Substance Abuse Treatment Services:** Concept paper about the increasing importance of provider performance measurement and analyses and an explanation of the case-mix adjustment methodology. ■ **Client Levels of Functioning as a Component of Substance Abuse Treatment Services Evaluation**: Description of the rationale and methods for assessing client level of functioning and recommended core LOF data elements that could help to measure the effectiveness of treatment services received. ■ **Substance Abuse Treatment Evaluation Policy Notebook:** These materials are aimed at facilitating understanding of the SAMHSA policy for evaluation and federal regulations on client confidentiality and assisting evaluators to meet CSAT evaluation requirements. ■ **Substance Abuse Treatment Evaluation Resource Notebook:** The notebook contains evaluation bibliographies and listings of organizations, hot lines, on-line data bases, and contact information for obtaining assistance in evaluating treatment services.
2. Selecting the evaluation design	■ **A Guide to Process Evaluation for Substance Abuse Treatment Services:** TA tool presenting purposes of process evaluation and the application of process evaluation methods to single site and multi-site treatment services. ■ **Using Logic Models in Substance Abuse Treatment Evaluations:** TA tool describing logic model purposes and techniques for designing and planning the evaluation of treatment services. ■ **A Guide to Selecting an Outcome Evaluation Design for Substance Abuse Treatment Evaluations:** TA tool describing overall strategies for developing evaluation questions, measurement, controls, validity/reliability, sampling, design effects, and generalizability of findings. (Battelle)

EXHIBIT I (CONTINUED)
EVALUATION FRAMEWORK AND INTEGRATED EVALUATION METHODS PACKAGE

EVALUATION FRAMEWORK	INTEGRATED EVALUATION METHODS PACKAGE
3. Developing data requirements	■ **Minimum Evaluation Data Set (MEDS): Core Data Lists:** TA tool for developing a uniform set of variables and response categories for the service delivery unit (SDU), clinician, cost, and client evaluation measures. ■ **Substance Abuse Treatment Cost Allocation and Analysis Template (SATCAAT):** User manual to analyze treatment costs by unit of service for an SDU. (Capital Consulting Corporation)
4. Developing data collection instruments	■ **Substance Abuse Treatment Services Evaluation Data Collection Instruments:** Data collection instruments that fully incorporate the MEDS and that have been field tested for validity and reliability, as follows: Service Delivery Unit (SDU) Description; Clinician Background and Practice Survey; protocols to collect Adult, Adolescent and Child (in treatment with parent) Client Data at Intake, During Treatment, at Treatment Discharge and Post Treatment; Adult and Adolescent Record Extraction forms; and a section on protection of human subjects and informed consent.
5. Collecting the data	■ **Staying In Touch: A Fieldwork Manual of Tracking Procedures for Locating Substance Abusers for Follow-up Studies (UCLA):** User manual to establish and implement client follow-up data collection systems and procedures. ■ **Strategies for Follow-up Tracking of Juvenile, Homeless, and Criminal Justice System-Involved Substance Abusers: Overview and Bibliographies, 1990-1998:** Description of tracking techniques used to increase response rates for follow-up interviews with homeless and juvenile/criminal justice involved substance abusers.
6. Analyzing the data	■ **A Guide to Substance Abuse Treatment Evaluation Data Analysis:** Recommended methods and procedures for analyzing process, SDU, clinician, cost, and client evaluation data.
7. Reporting the evaluation findings	■ **Substance Abuse Treatment Evaluation Product Outlines Notebook:** Compendium of outlines for evaluation products including evaluation plans, interim evaluation reports, final evaluation reports, replication studies, case studies, and ethnographies.

CSAT Evaluation "Stakeholders"

Evaluation "stakeholders" are individuals, groups, or organizations that have a significant interest in how well a program or activity functions. (See P.H. Rossi, H.E. Freeman, & M.W. Lipsey, *Evaluation: A Systematic Approach, 6th Edition*, 1999.) Within the context of the IEM Package, CSAT evaluation stakeholders include CSAT senior managers, CSAT project officers, and CSAT grantees and contractors including treatment service providers, coordinating centers, study sites, site-specific evaluators, and national evaluators.

Utility of the IEM Package for CSAT Evaluation Stakeholders

While the conceptual and TA materials were developed from the perspective of the site-specific and multi-site evaluator, the concepts and TA tools have important utility for CSAT managers, project officers, and treatment service providers. The stakeholder's position determines the perspective and utility of the IEM Package concepts and tools. For example, a CSAT senior manager can use the IEM Package to acquire a comprehensive evaluation context for planning and funding the knowledge-generating activities, the project officer can use the IEM Package to ensure that GFA/RFP applications are complete and include a full complement of design, execution, and product components, and the site-specific and multi-site evaluators can use the IEM Package to ensure that evaluation designs, data collection plans, data analyses, and product development have a consistent evaluation framework and compatible data across program areas. The suggested utility of the IEM Package for CSAT evaluation stakeholders is summarized in Exhibit II.

EXHIBIT II
UTILITY OF IEM PACKAGE FOR CSAT EVALUATION STAKEHOLDERS

STAKEHOLDERS	ROLES AND RESPONSIBILITIES	IEM PACKAGE UTILITY
SENIOR MANAGERS	■ Policy development ■ Issue identification for KD&As ■ Grant/contract funding decisions ■ Overall program management ■ Sustainability ■ Dissemination ■ Long-term strategic planning ■ Program designs ■ KA activities	■ Comprehensive evaluation framework ■ Comprehensive evaluation components ■ Roles and responsibilities for local/national evaluators as well as CSAT/grantee staffs ■ Guidance for evaluation designs and products ■ Standardized evaluation measures ■ Logic models for program and evaluation design
PROJECT OFFICERS	■ GFA/SOW development ■ Grant/contract application review ■ Grant/contract monitoring ■ Knowledge-generating products ■ Identification and replication of promising practices ■ Technical assistance assessment	■ Guidelines for high-quality evaluation designs (process and outcome) ■ Logic models for program and evaluation designs ■ List of evaluation measures with instrumentation ■ Guidelines for evaluation products
GRANTEES: STUDY SITES	■ Grant applications ■ Project development, implementation ■ Local evaluation management ■ Local evaluation coordination ■ Knowledge-generating product development	■ Evaluation plan outline ■ Process and outcomes evaluation designs ■ SDU, clinician, cost, and client measures ■ Roles and responsibilities for grantee provider/evaluator staff ■ Guidelines for evaluation products
GRANTEES: MULTI-SITE EVALUATORS	■ Grant applications ■ Comprehensive evaluation designs ■ Evaluation implementation: – Data collection – Data analysis – Reporting evaluation findings ■ Evaluation product development	■ Evaluation concepts ■ Logic models ■ Evaluation designs ■ Evaluation data requirements ■ Data collection instrumentation ■ Data collection process and procedures ■ Data analysis ■ Product development
NATIONAL EVALUATORS/ SERVICES RESEARCHERS	■ Contract applications ■ Comprehensive evaluation designs ■ Evaluation implementation: – Data collection – Data analysis – Reporting evaluation findings ■ Evaluation product development	■ Evaluation concepts ■ Logic models ■ Evaluation designs ■ Evaluation data requirements ■ Data collection instrumentation ■ Data collection process and procedures ■ Data analysis ■ Product development

IEM products and other evaluation materials may be obtained from:
http://neds.calib.com

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

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