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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. 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 and improve treatment effectiveness, efficiency, and performance. CSAT recognizes that such an integrated evaluation approach will more effectively support current and future 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.

This concept paper and its companion documents, *Integrated Evaluation Methods: A Guide for Substance Abuse Treatment Knowledge Generating Activities; Self-Adjusting Treatment Evaluation Model; Building Team Capability to Fully Implement and Utilize the Self-Adjusting Treatment Evaluation Model; Adding “Value” to CSAT Demonstrations; and Performance Measurement for Substance Abuse Treatment Services*, present state-of-the-art conceptual models addressing issues related to coordination of treatment and evaluation activities, and integration of clinical, performance and evaluation information. Specifically, this concept paper summarizes the background, methods, and tools needed for substance abuse treatment professionals to reliably assess client levels of functioning (LOF).

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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. Richard Finkbiner, Ph.D. was the primary author. In addition, many people within Caliber Associates contributed to this effort, including Patricia Devine, Harriet Perrine, Doug Fountain, Marsha Morahan, Robin Walthour, and Donna Caudill. Several major sections (including appendices) of this report were adapted from the draft document, *Level of Functioning: A Review of Nine Instruments*, which was produced by Battelle Centers for Public Health Research and Evaluation under subcontract to Caliber Associates. Mary Kay Dugan and Robert Orwin were the principal authors of that document, and their contributions were valuable and substantial.

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 document provides the conceptual background, methods, and tools needed for substance abuse treatment professionals to reliably assess client levels of functioning (LOF).

The document provides interested persons with three critical pieces of information related to assessment of client LOF. First, it provides an historical context and rationale for measuring client LOF. Second, it provides a detailed explication of existing instruments and technical approaches currently used to assess a variety of client functional domains. Third, it offers a rationale for including LOF measures in treatment services research and evaluations, which to date, is rarely done. This latter section may be of special interest to researchers and evaluation planners who might be interested in employing LOF measures within their evaluation designs. Client functional status measures are increasingly employed in private and public health care systems as performance indicators of quality and health care value (Kazis, 1998).

1. CONTEXT FOR THE CLIENT LEVELS OF FUNCTIONING 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

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- # **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 are summarized in Exhibit I, Appendix A. As shown, the use of logic models in CSAT evaluations is part of the second stage in the evaluation process: select 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 and the evaluation products listed in Exhibit I, is fully referenced in Appendix A, and is being made available on the Caliber Associates NEDS Contract Web site at <http://neds.calib.com>.

2. IMPORTANCE OF CLIENT LOF IN EVALUATIONS

The assessment of client level outcomes is an integral component of scientific research and evaluation of treatment effectiveness. A basic, core goal of substance abuse treatment is to effect substantial and enduring changes in client behaviors and useful strategies for managing their day-to-day lives. In the following section, it is argued that several important client functional domains should be included in the evaluation design. The importance of clients' daily functioning deserves prospective consideration when specifying evaluation methods and instruments. We conclude that the majority of currently employed measurement instruments used by substance abuse treatment providers fail to

adequately capture a key indicator of client change, namely client LOF. This is hardly surprising, given that instruments such as the Addiction Severity Index (ASI: McLellan, et al. 1980) historically have been employed primarily to document the medical need for substance abuse treatment and to facilitate client placement into appropriate treatment settings. LOF measures could be explored for their utility as quality of care indicators and treatment provider performance measures.

Recognizing this shortcoming of current client outcomes evaluations, CSAT has recently incorporated key client LOF measures within the core data elements contained in the Minimum Evaluation Data Set (MEDS). These core client LOF data elements are described in Section IV of this document.

Briefly, the MEDS responds to the need for a uniform set of data variables to be employed across substance abuse treatment evaluations. Conceptually, the MEDS represents the core variables which must be assessed across evaluation activities (i.e., across service delivery units [SDUs] as well as across client episodes) in order to demonstrate effective treatment outcomes.

3. HOW THIS PAPER IS ORGANIZED

Briefly stated, this document is intended as a toolkit for substance abuse treatment professionals. In order to address the diverse perspectives of various evaluation stakeholders, we have organized this document into three sections:

- # The section, *'Why measure client LOF?'*, provides the rationale for assessing clients' level of functioning from historical, research, clinical practice and policy perspectives, and provides a brief overview of the concepts of social, emotional, and physical functioning.
- # The section, *LOF Instruments*, provides a summary discussion of nine instruments currently used by clinicians, evaluators and researchers to assess client LOF. Summary information is provided on the purpose(s), domains, and psychometric properties of each instrument.
- # The section, *Conclusions and Recommendations*, provides a summary statement on the importance of including LOF measures in substance abuse treatment services evaluations, and describes how such measures fit within CSAT's *Self-Adjusting Treatment Evaluation Model* (SATEM).

Researchers with a current interest in developing evaluation-specific objectives related to client LOF may choose to direct their attention to the second section of the document and to the technical appendices (especially Appendices B and D) at the end of this document. Evaluation planners, case managers, policy makers or others interested in the general rationale and methods for assessing client level of functioning may wish to concentrate on the first and third sections of this document.

II. WHY MEASURE CLIENT LEVEL OF FUNCTIONING?

In this section we offer a rationale for promoting assessments of client LOF in evaluations of substance abuse treatment effectiveness. Most treatment providers and evaluation researchers would agree that the comprehensive assessment of a client's physical, emotional and social functioning is an important foundation for the effective treatment of substance abuse disorders.

The processes of addiction and recovery, often long-term in nature for those clients with lengthy substance abuse histories, occur within a complex, evolving social context. It is now recognized that the effective planning, implementation and evaluation of treatment services depends on the availability of valid and replicable client-centered assessments. Researchers have long understood this fact—that the validity of the treatment process and outcome evaluations is increased through the use of multiple assessment procedures within outcome domains (Cambell & Fiske, 1959).

1. HISTORICAL APPROACH TO CLIENT ASSESSMENTS

Until quite recently, a medical, disease-centered model has dominated the fields of substance abuse treatment and evaluation. Within such a context, client evaluations were employed primarily to establish reliable diagnoses of specific *diseases or disorders* and to determine which treatments were most appropriate for a given clinical case. Clinician-reported client data were typically given more weight in these kinds of assessments than were client [self]-reported data.

The perspective of *disease* (e.g., morbidity and mortality) is only one of a number of valid perspectives to assessing client change, however. Clients and their families have distinct, but equally valid, ways of defining an individual's state of health. These additional perspectives need to be considered when conducting client outcomes evaluations along the continuum of care (intake, treatment, aftercare, etc.). Exhibit II-1 illustrates the range of measurement perspectives that should be considered when conducting assessments of client health status (from Dickey & Wagenaar, 1996). A fully descriptive evaluation approach would incorporate all three perspectives—disease, illness and burden.

EXHIBIT II-1
PERSPECTIVES ON HEALTH ASSESSMENT

BIO-PSYCHO-SOCIAL DOMAINS	PERSPECTIVES:		
	Disease (Clinical Observation)	Illness (Client Self- Report)	Burden (Family Self- Report)
Social	Social networks; role functioning	Perceived social support; role satisfaction	Social support; role satisfaction
Emotional	Neuropsychological status; symptoms; DSM diagnosis	Subjective moods; feelings; attributions	Feelings; concerns about future
Physical	Morbidity and mortality	Fitness v. pain or limitations in daily functioning	Stress-related illness
General	Overall disease severity	Overall health; perceived need for services	Health of family system; perceived need for services

Increased pressure to adopt more client-centered approaches to clinical care has caused outcome evaluators to place greater emphasis on the clients' perspective, incorporating concepts such as "subjective health status" and quality of life into outcomes assessments (Leplege & Hunt, 1997). Chronic diseases, such as alcoholism or diabetes, have predictable and multiple negative impacts on a client's perceived quality of life and level of everyday functioning. Therefore, client outcomes based exclusively on disease or symptom remission lacks validity for these populations.

This emphasis on clinician-reported data was also a legacy of earlier models of evaluation that assumed a scientific positivist approach to measurement and observation. Briefly, the positivist position asserts that "objective" measurements by unbiased observers (as opposed to the "subjective" measurements obtained from clients) are the only reliable measures of "the way things really are." In contrast to this position, current constructivist theories of evaluation propose that *all* measurement perspectives and activities are influenced by subjective and contextual factors (Guba & Lincoln, 1989). According to these "fourth-generation evaluators," *subjective* interpretations of the meaning of data are inescapable products of *any* evaluation activity. In short, both objective and subjective measurements need to be included in substance abuse treatment evaluations.

These earlier evaluation models did not adequately provide for methods and instrumentation to measure changes in clients' LOF. Traditional clinical practice emphasized assessment of clients at beginning of a treatment episode, and scant attention was given to re-assessment at the end of treatment or thereafter. In order to infer changes in client health status or behaviors from the measured outcomes, evaluators must incorporate multiple, parallel assessments.

Patterns of client change across time may differ markedly between symptom status and functional status measures. For example, a client may demonstrate significant improvement in specific symptoms or *overt* behavioral consequences of addiction (e.g., has stopped using injection drugs), and yet show minimal gains in other, more subtle, areas of functioning (e.g., perceived social supports). Conversely, traditional assessments might show no change in a client's symptom status (e.g., is still using drugs), and still demonstrate improvements in specific functional areas (e.g., increased supports received from a recovery network). The typical clinical approach to client assessment focused on the stage of entry into treatment. Effective evaluation models need to incorporate client assessments

2. EVALUATING CLIENT FUNCTIONAL STATUS

The three components of (bio-psycho-social) functional status evaluation shown in Exhibit II-1 are based on conceptions of social, mental, and physical health that have evolved over the past five decades. In 1948, the World Health Organization (WHO) defined health in terms of "physical, mental, and social well-being, and not merely the absence of disease and infirmity" (WHO, 1958). The WHO definition of health parallels the increasing influence of public health concepts such as *wellness* and *prevention* within the general health care sector. The following descriptions of client functional domains reflect this emphasis on the client's perspective toward his/her quality of life.

2.1 Social Health

While the importance of social aspects of health is often recognized by research and clinical professionals, this functional domain was historically regarded as being of secondary importance when contrasted with biological and mental functioning. Also, the very concept of social health is less familiar to many lay and professional audiences (McDowell & Newell, 1996). Members of the health professions, however, are now recognizing the importance of social factors as both contextual and determinant influences on client's recovery from illness and maintenance of health (well-being). The three areas of social health most frequently assessed through LOF instruments are *social adjustment*, *social roles*, and *social support*.

2.2 Emotional Health

As described above, client's "subjective" assessments of emotional well-being or life satisfaction were historically downplayed in evaluations of treatment effectiveness. Today, there exist many scales and instruments to measure psychological health and well-being from the client's perspective. The majority of these scales place an emphasis on one or more of the following areas:

- # Mental distress
- # Client's primary cognitive or affective orientation (i.e., outlook or expectancies)
- # Emotional responses to daily experience.

These areas are not mutually exclusive, nor do these instruments attempt to identify or distinguish specific dimensions of psychopathology. Instead they assess clients' patterns of psychological adaptation to the everyday environment.

2.3 Physical Health

The measurement of physical health, or conversely, physical disability, has a lengthy history in health services research. Since the late 1950's, the concepts of disability and physical impairment have been operationalized within numerous activities of daily living (ADL) scales. These scales, developed largely for geriatric and/or chronically ill populations, were limited to the more severe levels of disability and had limited application to those clients living in the community. In response to these limitations of the ADL scales, researchers developed a series of measures called Instrumental Activities of Daily Living (IADL) scales, which focused on activities that were essential for community life (e.g., mobility, shopping, cooking, etc.). McDowell and Newell (1996) cautioned that very few scales of physical functioning (e.g., the Medical Outcomes Study, Physical Functioning Scale [reviewed below]) are appropriate for assessing clients with the greatest functional capacities.

3. CURRENT EMPHASIS OF CLIENT ASSESSMENTS

The majority of client assessment instruments currently employed in substance abuse treatment settings emphasize three broad domains: the objective identification and documentation of the substance abuse disorder, the measurement of client characteristics that are likely to impact the treatment process,

and the assessment of specific social indicators (e.g., employment) affected by a client's substance abuse patterns.

Depending on the evaluation strategy and design, there are a number of fairly standard categories of client-level data that are collected at multiple time points across a substance abuse treatment episode. Such measures have been effectively employed in many large-scale evaluations of treatment effectiveness. Examples of the client-level variables frequently collected are:¹

- # Data record management items (e.g., client and SDU identifiers, dates of service)
- # Client demographics (e.g., gender, age, ethnicity)
- # Drug and alcohol use
- # Family and living conditions
- # Education/Employment/Income
- # Criminal justice status
- # Substance abuse treatment services
- # Past mental and physical health services
- # Physical/ Sexual/ Emotional abuse history
- # History of high-risk behaviors (e.g., HIV risk factors).

Within these sets of client-level variables, there are a number of specific items which have been useful in documenting treatment outcomes. Examples include the pre- and post-treatment measurement of clients' employment status, criminal behaviors, drug-use behaviors and/or sexual risk behaviors. In order to document the effectiveness of substance abuse treatment to an ever widening set of stakeholders (service providers, purchasers of services, policy makers, researchers and evaluators, funding agencies, etc.), evaluators must begin to consider the task of client assessment from the perspective of multiple evaluation audiences.

¹ This list is a compilation of the domains represented by the Addiction Severity Index (ASI), the minimum and supplementary components of the Treatment Episode Data Set (TEDS: SAMHSA, 1995) and the MEDS.

4. EVALUATION AUDIENCES

Traditionally, evaluations were frequently conducted with a limited number of audiences given explicit consideration by the investigator. An examination of the previously cited list of client-level variable domains reveals that the most likely perspectives to be considered are those of the clinician, the researcher, and in some cases, the purchaser(s) of care. Exhibit II-2 lists these audiences and their perspectives (primary interests) regarding evaluation outcomes.

**EXHIBIT II-2
EVALUATION AUDIENCES**

AUDIENCE	PRIMARY DOMAIN OF INTEREST
Clinicians	Clinical status of clients
Researchers What is measurable	What is measurable
Purchasers Costs of care	Costs of care
Clients	Functioning in everyday life
Families	Impact on family
Society	Allocation of scarce resources

(after McGlynn, 1996)

As noted throughout this discussion, many client assessment frameworks currently used by clinicians and evaluation researchers emphasize a disease-symptom model of substance abuse. These models are effective in serving the narrow goal of matching substance abuse clients to a proposed treatment strategy or treatment setting. However, clinician-reported information about symptoms does not adequately capture clients' and family perceptions about their illness and disease burden (i.e., rows 4 and 5 of Exhibit 2) and therefore is only partially valid as an indicator of favorable client outcomes.

Clients frequently want to know: “Will substance abuse treatment make me better?” Similarly, families often ask: “Will substance abuse treatment make the client easier/better to live with?” To answer these questions, evaluation outcomes must be framed in accordance with the implicit goal of *improving client functioning in everyday life*. Some mixture of clinician- and client-rated LOF items

are necessary to fully understand the impact of treatment interventions from the client and family perspectives. This trend is also reflected by the increased inclusion of treatment consumers on treatment service boards, expert panels, and policy bodies. In the next section, we review nine instruments that collect LOF information from one or more of these respective sources. Detailed information on the psychometric properties of these instruments is provided in Appendix B of this report.

III. LOF INSTRUMENTS

The two primary sources of information regarding client level of functioning are derived from clinicians' assessments and client self-reports. Clinician-reported instruments are designed to collect information from the clinician on his or her assessment of a client's level of functioning. The clinician's assessment can be based on direct observation and/or a judgment of the client's own self-reported behaviors. Client-reported instruments on the other hand, are designed to collect information about substance abuse behavior and level of functioning directly from the client. These instruments may be in the form of self-administered questionnaires or structured interviews.

Because clinician- and client-reported instruments focus on obtaining information on level of functioning from different sources, we group the nine instruments reviewed into three categories: clinician-reported instruments, client-reported instruments, or client-clinician reported instruments. Within this last category are two instruments that are essentially a "hybrid" of the former two categories. The client is the *primary* respondent for client-clinician instruments, but these instruments also contain a section for the *clinician or interviewer* to assess the validity of client-reported information and provide clinical judgments of severity of impairment.

In addition to the general descriptions of instruments presented in this section, this report also contains: a detailed discussion of the measurement properties of each instrument (Appendix B); contact information for obtaining instruments (Appendix C); detail on the functional domains assessed by each instrument (Appendix D); an annotated bibliography for each instrument (Appendix E); and specific bibliographic references for each instrument (Appendix F).

1. CLINICIAN-REPORTED INSTRUMENTS

This section describes three clinician-reported instruments: the CAFAS, the GAF, and the SLOF. Each is an example of a clinician-rated instrument that focuses on obtaining information from clinicians about their client's level of functioning.

1.1 Child and Adolescent Functional Assessment Scale (CAFAS)

The current version of the Child and Adolescent Functional Assessment Scale (CAFAS) was developed in 1994 by Hodges. It is a clinician-reported instrument designed to assess functional impairment due to behavioral, emotional, or substance use problems in children and adolescents between the ages of 7 and 17. Information to complete the CAFAS can be based on data collected

directly from the youth, someone knowledgeable about the youth's behavior, or from direct observation. The CAFAS typically takes about 10 minutes for a trained rater to complete (Hodges, 1998).

Domains Assessed

The CAFAS measures social and personal functioning along a continuum beginning with severe impairment, to moderate, mild and then to minimal or no impairment (Hodges, 1998). It consists of eight scales for which a client is assessed—three scales assess role performance: School/Work (i.e., functions satisfactorily in a group educational environment), Home (i.e., observes reasonable rules and performs age-appropriate tasks), and Community (i.e., respects the rights of others and their property and acts lawfully).

The remaining five scales are: Behavior Toward Others (i.e., appropriateness of youth's daily behavior), Mood/Emotions (i.e., modulation of the youth's emotional life), Self-Harmful Behavior (i.e., extent to which the youth can cope without resorting to self-harmful behavior or verbalizations), Substance use (i.e., youth's substance use and the extent to which it is inappropriate and disruptive), and Thinking (i.e., ability of youth to use rational thought processes). In addition, there are two caregiver scales. The first assesses material needs (i.e., extent to which the youth's functioning is interfered with due to lack of resources, such as food, clothing, housing, medical attention, or neighborhood safety). The second assesses family/social support (i.e., extent to which youth's functioning is disrupted due to limitations in the family's psychosocial resources relative to the youth's needs) (Hodges, 1998).

Investigator Experience

The CAFAS has been used by researchers and clinicians in treatment planning, treatment monitoring, and outcomes assessment. Hodges and associates (1998) report that currently, many states use the CAFAS to determine eligibility for state programs and for measuring performance-based outcomes. The CAFAS has also been used in two large outcomes studies: the Fort Bragg Evaluation Project and an evaluation of demonstration grants (Center for Mental Health Services) (Hodges, 1998). These studies have shown that the CAFAS works well for youth referred from a variety of services including schools, courts, education or mental health, and is sensitive to changes in a client's behavior over time (Hodges, 1998; Hodges and Wong, 1996). We note that in studies using the

CAFAS investigators have not specifically reported whether substance abuse populations were included nor have they reported it being specifically used in a substance abuse treatment setting.

1.2 Global Assessment of Functioning Scale (GAF)

The Global Assessment of Functioning Scale (GAF) was developed in 1987 (Spitzer et al., 1996). It is based on an earlier version (known as the GAS) that was a modification of the Health Sickness Rating Scale (Luborsky, 1962). The GAF is designed to measure overall psychosocial functioning and is commonly used to assess psychiatric clients at the time of admission to a mental health facility (either in-patient or outpatient). It is a clinician-reported instrument in which a client is given a single rating along a continuum from psychological sickness to health. The information necessary to complete the GAF, however, may be derived from multiple sources. The GAF is reported to take a few minutes to complete and is typically used by mental health professionals including psychiatrists and clinical psychologists (Spitzer et al., 1996).

Domains Assessed

The GAF is Axis V of a multiaxial assessment (DSM-IV and DSM-II-R) of mental disorders (Spitzer et al., 1996). It is a single-item scale for evaluating overall psychosocial functioning (psychological symptoms and occupational and social functioning) during a specified time period (usually during the previous week). Ratings on the GAF range from 1 to 100, with 1 representing the hypothetically sickest person and 100 representing the hypothetically healthiest person. The scale is divided into 10 equal intervals (10 points each) and a client is rated by the descriptor attached to each interval. The majority of psychiatric clients in treatment are rated between 1 and 70 on the GAF.

Investigator Experience

The GAF has been used in both clinical practice and research studies. It has been widely used with adults and adolescents across a variety of mental health treatment settings. As part of the official diagnostic manuals, DSM-III-R and DSM-IV, the GAF may be the most commonly used clinician rating scale of psychiatric client functioning. We found three studies that used the GAF specifically with substance abuse populations. Two of these studies were done outside of the U.S. One study compared alcoholic and non-alcoholic Chinese bipolar clients in Taiwan (Tsai et al., 1997) and the other compared substance abusing and non-substance abusing schizophrenics in Germany (Krausz,

1996). A third study, conducted in New York City, compared residential treatment outcomes for homeless mentally ill substance abusers (Nuttbrock et al., 1998).

Investigator experience using the GAS, the GAF predecessor, with substance abuse populations includes studies within mental health and drug treatment settings. Some of the studies evaluated substance abuse treatment outcomes (Charney et al., 1998; Jenkins, et al., 1992; Rounsaville et al., 1986) while other studies were interested in relating psychopathology to substance abuse (Dixon et al., 1991; Westermeyer et al., 1988). The substance abuse populations included in these studies were primarily addicted to alcohol, cocaine, heroin, benzodiazepine, or marijuana. Accompanying mental health diagnoses included schizophrenia, depression, somatization, anxiety, paranoia, low self-esteem, phobia, and bizarre speech or behavior.

1.3 Specific Level of Functioning Scale (SLOF)

The Specific Level of Functioning assessment scale (SLOF) is a multidimensional behavioral rating instrument that was developed over a three-year period (in the early 1980s) by staff at the New Jersey Division of Mental Health and Hospitals (Schneider and Struening, 1983). The instrument was designed to assist staff at the state hospitals in treatment planning for their clients. It is designed to measure directly observable behavioral functioning and daily living skills.

Domains Assessed

The SLOF consists of a list of 43 behavioral items, each of which is to be judged by a clinician or trained staff member on a five-point Likert-type scale. The items are grouped into six domains: Physical functioning (e.g., vision, hearing), personal care skills (e.g., eating, personal hygiene), interpersonal relationships (e.g., participates in groups), social acceptability (e.g., verbally abuses others), activities of community living (e.g., household responsibilities), and work skills (e.g., completes assigned tasks). In addition, an “other” item is included to give the clinician the opportunity to indicate areas of functioning not covered by the instrument that may be important for a particular client. A separate item has the rater assign a rating to his or her assessment of the client.

Investigator Experience

Our review of the literature revealed few published articles describing the SLOF. One was written by the author of the SLOF instrument (Schneider and Struening, 1983). This article describes

the instrument and its psychometric properties based on a study conducted in hospitals and community aftercare agencies in New Jersey (Schneider and Struening, 1983). We found two other published studies that cited the use of the SLOF (Shah, 1994; Nuttbrock et al., 1996). In one article the SLOF was used to assess level of functioning among hospitalized insanity acquittees compared to the general inpatient population at a New Jersey State Hospital (Shah, 1994). Clients were matched for history of substance abuse disorders (68% for both groups). Nuttbrock et al., 1996, examine the relationship between psychopathology among mentally ill chemical abusers and level of functioning (as measured by the SLOF) in two types of community-based residential treatment programs. Results from this study indicated that individuals with moderate to severe psychopathology can be successfully treated in a residential treatment program requiring high levels of interpersonal involvement and functioning (Nuttbrock et al., 1996).

2. CLIENT-REPORTED INSTRUMENTS

This section describes four instruments commonly employed to measure client LOF in adults and adolescents. These instruments--the BASIS-32, SF-36, QOLI and YSR—target the client as the respondent.

2.1 Behavior and Symptom Identification Scale (BASIS-32)

The Behavior and Symptom Identification Scale (BASIS-32) was developed in 1986 by Eisen, Grob and Klein. It assesses outcomes of mental health treatment from client self-reported data. It was designed for adults receiving mental health treatment, although it has been used on adolescents (aged 14 and above). The BASIS-32 can be used to assess clients at intake, during treatment, and after treatment is completed. It can be administered either as a structured interview (in person or telephone) or a self-administered instrument. If administered through a structured interview it takes approximately 15-20 minutes to complete, while self-administered takes most clients 5-10 minutes to complete (Eisen, 1996).

Domains Assessed

The BASIS-32 was empirically derived from psychiatric inpatients' reports of symptoms and problems (Eisen et al., 1994). All items are scored into one of five subscales as follows: relation to self and others, daily living and role functioning, depression and anxiety, impulsive and addictive behavior, and psychosis. Clients are asked to indicate the degree of difficulty they have been experiencing on each item in the past week. The degree of difficulty is rated on a five-point scale as follows: 0, no difficulty; 1, a little; 2, moderate; 3, quite a bit; and 4, extreme. In addition, an overall average score is computed for the BASIS-32 (Eisen, 1996).

Investigator Experience

Included in a list of recommended outcome measures by the American Association for Partial Hospitalizations (Eisen, 1996), the BASIS-32 is widely used to assess client's progress during the course of treatment and to measure improvement after release from a treatment program (Eisen and Dickey, 1996; McLean Reports, 1995 and 1998). The BASIS-32 has been primarily used on psychiatric inpatients, but it has also been used on partial hospital and outpatient populations (Eisen, 1996).

In addition, the BASIS-32 has been used to measure substance abuse prevalence in adolescent and adult mental health inpatients (Eisen et al., 1992; Eisen et al., 1989) and to evaluate various treatment programs within mental health facilities (Sederer et al., 1992). We found through our investigation that the BASIS-32 has been used in mental health treatment settings with populations of substance abusers.

2.2 Medical Outcomes Study 36-Item Short-Form (SF-36)

The Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) was developed in 1992 by Ware and his colleagues. It is a self-administered survey of generic health status suitable for respondents 14 years of age and older. It has been very widely used in a variety of clinical and research applications including general population surveys as well as cross-sectional and longitudinal studies of specific diseases and treatments (Ware, 1996). Typically, the SF-36 can be administered (either self-administration or personal interview) in about 5-10 minutes.

Domains Assessed

The SF-36 measures eight different concepts: physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality (energy/fatigue), social functioning, role limitations due to emotional problems, and mental health (psychological distress and psychological well being). An item on change in health during the past year is also included. In addition to the eight scale scores, summary physical and mental health scales can be scored.

Investigator Experience

Because the SF-36 is a general measure of health status and has well demonstrated psychometric properties it has been widely used in variety of contexts and with a wide range of populations (Ware, 1996). It has been used by investigators to monitor population health, to estimate the burden of different conditions, to conduct clinical trials of treatment effects, and to monitor outcomes in clinical practice (Ware et al., 1993). The SF-36 has been used with various substance abuse populations in a variety of settings. For example, Johnson and associates (1995) investigated psychiatric comorbidity, health status and functioning with alcohol abusers in primary care clinics. In addition, the SF-36 has been used to compare the health status of heroin users at methadone program entry with population norms and clients with medical and psychiatric problems (Ryan and White, 1996).

2.3 Quality of Life Interview (QOLI)

The Quality of Life Interview (QOLI) was developed in the early 1980s by Lehman and first published in 1982. It is designed to assess the recent and current life circumstances of severely mentally ill populations (Lehman, 1996). The instrument can be used with clients that have chronic and severe mental illnesses. While it was developed for particular use in community-based settings, it has been adapted for clients in long-term institutions as well. The QOLI is administered in a structured interview format and it takes about 45 minutes for a trained interviewer to administer (Lehman, 1996).

Domains Assessed

The QOLI has 153 questions in eight domains that measure global life satisfaction and subjective quality of life. The eight domains are living situation, daily activities and functioning, family

relations, social relations, finances, work and school, legal and safety issues, and health. For each domain, there are both objective and subjective questions with the objective questions being asked before the subjective questions (Lehman, 1996). Objective indicators include items such as length of time at current residents and current employment status. Subjective indicators include items such as satisfaction with family, work and health. All of the subjective quality of life questions are measured on a seven point scale: 1 is terrible, 2 is unhappy, 3 is mostly dissatisfied, 4 is mixed (about equally satisfied and dissatisfied), 5 is mostly satisfied, 6 is pleased, and 7 is delighted.

Investigator Experience

The QOLI was first used in 1980 in a survey of severely mentally ill persons living in large board-and-care homes in Los Angeles to assess quality of life of chronic mental health clients (Lehman, 1982; 1983; 1988). The instrument has been widely used in many different capacities since. For example, it has been used to compare the quality of life of clients in different types of treatment facilities (Lehman et al., 1986; Simpson et al., 1989; Levitt et al., 1990; Lehman et al., 1991; Sullivan et al., 1992; Rosenfield and Neese-Todd, 1993). In recent years it has been used in the national evaluation of the Robert Wood Johnson Program on Chronic Mental Illness (Lehman et al., 1994), for an evaluation of Assertive Community Treatment Programs in Baltimore (Dixon et al., 1995), and as a predictor of treatment outcomes (Russo et al., 1997c).

2.4 Youth Self Report (YSR)

The current version of the Youth Self Report (YSR) was developed in 1991 (Achenbach). It is intended to be one component of a multi-axial assessment of functioning which also includes parent and teacher reports, standardized tests, physical assessment, observations, and interviews. The YSR obtains youths' self-reports of their own competencies and problems in eight areas (see domains below). It is designed for youths (ages 11-18) that have at least fifth-grade reading skills. Typically, the instrument takes about 15 minutes to complete.

Domains Assessed

The YSR includes seven items related to competency. Competency items solicit information from the youth, for example, on activities they participate in such as sports, hobbies, and chores. In addition, items related to the number of friends, amount of time spent

with friends, and performance in academic activities are included. The competency items are designed to be scored on Activities, Social, and Total competence scales modeled after those in the Child Behavior Check List (CBCL/4-18). Normative data are available for the YSR competence scales (Achenbach, 1991). The YSR also contains 63 items in 8 problem domains (9 domain for boys) that are scored. The eight domains are as follows: Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior and Aggressive Behavior. In addition, a Self-Destructive/Identity Problems domain can be scored for boys.

Investigator Experience

The Youth Self-Report has been used in a variety of settings (e.g., clinic, school, and juvenile court) with youths for both clinical and research purposes (Vignoe and Achenbach, 1997; Achenbach, 1991). The YSR has been shown to be useful in both research studies and clinical practice because it measures a wide range of functioning. Topics of investigation have been equally broad with studies of suicide, diabetes, and children of alcoholics. Only two studies have used the YSR specifically in a substance abuse treatment settings, and both of these studies used only some of the YSR scales. Blood and Cornwall (1994) investigated whether the Internalizing and Externalizing scales of the YSR could predict completion of an adolescent substance abuse treatment program. They found that the Internalizing scale predicted completion for males, however results for females were less clear. The second study, by Moss and Kirisci (1995), found a positive relationship between aggressivity, as measured by the YSR Aggressive Behavior Scale and the Multidimensional Personality Questionnaire (MPQ), and greater alcohol consumption.

3. CLIENT - CLINICIAN REPORTED INSTRUMENTS

Two of the instruments reviewed in this paper, the ASI and SAOM, combine client-reported data with clinician ratings of overall functioning.

3.1 Addiction Severity Index (ASI)

The Addiction Severity Index (ASI) was developed in 1979 (McLellan et al., 1985). It is very widely used to evaluate the nature and severity of substance abuse problems for individuals in treatment settings (McLellan et al., 1996). The ASI obtains information from a client about aspects of his or her life that may contribute to a substance abuse problem. It is based on the theory that addiction must be evaluated in the context of those treatment problems that contribute to and/or result from substance use.

The instrument was developed for adult populations of alcohol, drug, multiple substance, and/or psychiatric ill substance abusing individuals. The ASI is a semi-structured interview designed to be used by a trained research technician or clinical caseworker or counselor. It usually requires about 60-75 minutes to complete the interview with a client (McLellan et al., 1996).

Domains Assessed

The ASI contains 142 items that measure problems in seven domains: medical status, employment and support, drug use, alcohol use, legal status, family/social status, and psychiatric status (McLellan et al., 1996). For each domain, the client provides information regarding the frequency, duration, and the severity of the problem over the course of his or her lifetime and during the 30 days prior to the interview. Objective and subjective data are combined by the interviewer to derive a rating for the client (on a 10-point scale) for each problem area. The ASI allows for an interviewer severity rating of lifetime problems and a composite score indicating the severity of the problems in the last 30 days separately for each of the domains (McLellan et al., 1996).

Investigator Experience

Of the nine instruments reviewed, the ASI is the most widely used in substance abuse treatment settings. It is used both for clinical practice and research purposes. Investigators have extensively tested its psychometric properties and have consistently reported it to be both reliable and valid in a number of contexts (McLellan et al., 1985; Kosten et al., 1985; Rogalski, 1987; Hendricks et al., 1988).

The ASI has been used to screen and assess clients, match clients to effective treatments, define client subgroups, and assess clients after treatment. It has been used in treatment outcome studies for opiate, cocaine, and alcohol dependence (Alterman et al., 1993; Ball and Corty, 1988; Gawin et al., 1989; Kadden et al., 1990; McLellan et al., 1993;1994). Furthermore, the ASI has also been used to evaluate other related populations such as drug abusing prisoners (Wexler et al., 1988), psychiatrically ill substance abusers (Lehman et al., 1989), homeless persons with and without substance abuse problems (Lubran, 1990), and pregnant addicts and addicted mothers (Smith et al., 1990).

3.2 Substance Abuse Outcomes Module (SAOM)

The Substance Abuse Outcomes Module (SAOM) is a relatively new instrument (developed in 1995) that combines two previous outcomes modules (alcohol abuse and drug abuse modules) developed earlier by the authors (Smith et al., 1996). There are four components of the SAOM: Patient Baseline Self-Assessment, Clinician Baseline Assessment, Patient Follow-up Assessment and Medical Record Review. It is designed to monitor care among adults in substance abuse treatment settings.

The SAOM measures the types, intensity and outcomes of care received for substance abuse, and the factors that influence outcomes of care, including readiness to change. It assesses diagnostic criteria to identify a homogeneous group of clients and measures whether they meet diagnostic criteria for substance abuse or dependence. It was designed for adult substance abusers in public and private specialty care networks. All components of the SAOM are self-administered, except for the Clinician Baseline assessment and the Medical Records Review. Typically, the patient baseline and follow-up instruments each take 30 minutes to complete and the medical records review takes about 10 minutes (Smith et al., 1996).

Domains Assessed

The SAOM measures change in substance consumption, symptoms of dependence, and general functioning over time (Smith et al., 1996). Information on general functioning is measured by the MOS Short-Form 36 (SF-36; Ware and Sherbourne, 1992). The SF-36 assesses physical functioning, physical and emotional role functioning, bodily pain, general health, vitality, social functioning, mental health, and health transitions. In addition, the SAOM measures aspects of functioning relevant to substance abuse. Questions related to treatment seeking, choice of treatment, and outcomes of care comprise the third component of the instrument. The fourth and final component of the SAOM measures treatment components. These are as follows: type (pharmacotherapy, individual therapy, group therapy, 12-step programming), extent (dose, frequency, duration, number of sessions), and setting (specialty care and primary care, inpatient, outpatient, residential, aftercare, emergency room) (Smith et al., 1996).

Investigator Experience

The SAOM is currently being pilot tested as part of a corporate study on employee assistance program referral patterns (Smith et al., 1996). To date, there are no published studies describing investigator use with the SAOM; however, two articles are currently under review (Personal Communication, Kramer at CORE, September, 1998). Thus, there is very limited information currently available on the SAOM.

4. SUMMARY

In this section we provide “at a glance” summaries of the nine instruments reviewed in terms of their intended purpose, domains assessed, psychometric properties and investigator experience.

Exhibit III-1 provides a concise summary of the three clinician-reported instruments. One of the instruments was designed for children and adolescents (CAFAS), whereas the other two (GAF and SLOF) were designed to assess mentally ill adults. The CAFAS includes the most extensive assessment of individual functional domains, and includes specific items on substance use/abuse. In contrast, the GAF is relatively brief, provides a single composite measure of social, psychological and social functioning, and does not directly address substance use/abuse issues.

Exhibit III-2 summarizes the four client-reported instruments reviewed in this paper. While these four instruments have been applied to populations of substance abusers, they were originally designed for other groups such as mentally ill adults (BASIS-32, QOLI), at-risk youth (YSR), or general populations (SF-36). All of the instruments in this category have a significant research base--each instrument covers a substantial range of functional domains and the item scales for the most part tend to have adequate to excellent psychometric properties.

Lastly, Exhibit III-3 provides a summary of the two client-clinician instruments. Both instruments were designed with the specific intention of tracking client outcomes for substance abuse populations, and are therefore potentially strong evaluation tools for the substance abuse treatment researcher. Unfortunately, there are as of yet no published research findings for the SAOM. Therefore, it is likely that many researchers and clinical workers will choose to employ the more familiar and rigorously-tested ASI instrument.

**EXHIBIT III-1
CLINICIAN-REPORTED INSTRUMENTS**

Instrument Name, Author, & Year Published	Original Target Population	Purpose	Domains Assessed	Psychometric Properties	Investigator Experience
Child and Adolescent Functional Assessment Scale (CAFAS), Kay Hodges, 1989 & 1994	Children and adolescents (ages 7 to 17)	Evaluate program effectiveness and assist clinical staff in assigning care and tracking outcomes	<ul style="list-style-type: none"> Role Performance -School/work -Home -Community Thinking Behavior Toward Others Moods/Self-Harm -Emotions -Self harm behaviors Substance Use Caregiver Resources -Material needs -Family/Social support 	Reliability and validity- 2 studies of youth referred for mental health problems. Psychometric properties unknown for substance abusers.	Used by researchers and clinicians in treatment planning, monitoring, and outcomes assessment for youth at risk for and referred for mental health problems.
The Global Assessment of Functioning Scale (GAF), Robert Spitzer, 1976; ©American Psychiatric Association, 1994	Mentally ill adults	Assist in the assessment of treatment needs	Psychological symptoms, Social and Occupational functioning	Limited reliability and validity information for samples of mentally ill inpatients and outpatients.	Widely used as part of the DSM III-R and DSM-IV. Most commonly used clinician-rating scale of psychological functioning.

**EXHIBIT III-1
CLINICIAN-REPORTED INSTRUMENTS (CONTINUED)**

Instrument Name, Author, & Year Published	Original Target Population	Purpose	Domains Assessed	Psychometric Properties	Investigator Experience
Specific Level of Functioning (SLOF), Leonard Schneider and Elmer Struening, 1983	Mentally ill adults in state hospitals	Assist treatment staff in goal-oriented treatment planning	Physical Functioning Personal Care Skills Interpersonal Relationships Social Acceptability Activities of Community Living Work Skills	Limited information on reliability and validity available. Unknown for substance abusers.	Used primarily by clinical staff in the NJ division of Mental Health and Hospitals to assess clients.

EXHIBIT III-2 CLIENT-REPORTED INSTRUMENTS					
Instrument Name, Author, & Year Published	Original Target Population	Purpose	Domains Assessed	Psychometric Properties	Investigator Experience
Behavior and Symptom Identification Scale (BASIS-32), Susan Eisen, et al., 1986	Mentally ill adults	Assess treatment outcome from the patient's point of view	Relations to Self & Others Daily Living/Role Functioning Depression & Anxiety Impulsive/Addictive Behavior Psychosis	Well-demonstrated reliability and validity for mental health patients and subgroups of substance abusers.	Extensively used by researchers and clinicians on psychiatric inpatients. Used to assess progress during and following treatment. Less extensively used with partial hospital and outpatient populations. Substance abuse populations have been studied.
MOS Short Form-36 (SF-36), John Ware, 1992	General population aged 14 and older	Evaluation research and general populations surveys	Physical Functioning Role Limitations -Physical problems -Emotional problems Bodily Pain General Health Status Vitality Social Functioning Mental Health	Good psychometric properties based on studies with diverse medical and psychiatric samples. Unknown specifically for substance abuse populations.	Widely used by researchers and clinicians in general populations surveys as well as studies of specific diseases and treatments. Has been used in substance abuse treatment settings.

EXHIBIT III-2 (CONTINUED)
CLIENT-REPORTED INSTRUMENTS

Instrument Name, Author, & Year Published	Original Target Population	Purpose	Domains Assessed	Psychometric Properties	Investigator Experience
Youth Self-Report (YSR), Thomas Achenbach, 1991	Youth (aged 11-18 yrs.)	Assess functioning from the client's point of view	Withdrawn Somatic Complaints Anxious/Depressed Social Problems Thought Problems Attention Problems Delinquent Behavior Aggressive Behavior Self-Destructive Behavior Activities Competency Academic Performance Social Competency	Overall acceptable. Individual scales vary on reported reliability and validity. Psychometric properties have not been reported specifically for substance abuse populations.	Used by researchers and clinicians in a variety of settings (clinic, juvenile court, schools) to assess youths' self-reported functioning. Portions of the YSR have been used with substance abusing youth in treatment programs.
Quality of Life Interview (QOLI), Anthony Lehmen, 1982	Severely mentally ill adults	Assist in the assessment of treatment needs	Living Situation Daily Activities Family Relations Social Relations Finances Work & School Legal & Safety Issues Health	Psychometric properties have been evaluated on mentally ill patients including subgroups of substance abusers.	Primarily used to assess persons with severe and persistent mental illness in community-based settings. Has been adapted for patients in long-term institutions and has been used to assess substance abusers.

**EXHIBIT III-3
CLIENT-CLINICIAN INSTRUMENTS**

Instrument Name, Author, & Year Published	Original Target Population	Purpose	Domains Assessed	Psychometric Properties	Investigator Experience
Addiction Severity Index (ASI), A. Thomas McLellan, 1980	Substance abusing adults; alcohol, drugs, and multiple substances	Evaluate substance abuse treatment outcomes	Medical Status Employment & Support Drug Use Alcohol Use Legal Status Family/Social Status Psychiatric Status	Excellent reliability and validity demonstrated in substance abuse populations and treatment settings.	Widely used by researchers & clinicians. Used to screen & assess clients, identify treatment needs, define client subgroups, and assess post-treatment status
Substance Abuse Outcomes Module	Substance abusing adults	Monitor substance abuse treatment outcomes	Physical Interpersonal/Intrapersonal Impulse Control Social Responsibility General Health Status Bed Days Legal Status Drug & Alcohol Use Substance Abuse/Dependency Parental Substance Use Age of Onset Prior Treatment(s) Social Support Recovery Support Depression Antisocial Parenting Responsibilities	Unknown for the SAOM as a whole. No published data available. Some data for components (e.g., ASI, SF-36 items).	Only recently developed for research purposes. Studies should be forthcoming.

In this section, we provided information on the purpose of the nine instruments reviewed, the domains covered, their psychometric properties, and their use by investigators. An annotated bibliography of selected studies for each instrument is provided in Appendix C. We note that we have not attempted to assess these instruments in this report. Finally, we note that through our review of the nine instruments, we have identified several other instruments that measure client level of functioning that may warrant further investigation because of their potential use in evaluating clients in substance abuse treatment settings. Examples of these include:

- # The **Treatment Outcome Prospective Study (TOPS)** funded by the National Institute on Drug Abuse, is using the TOP—self-reported instrument assessing quality of life, symptomatology, level of functioning and client satisfaction with services (measured at discharge only). The level of functioning scale addresses functioning in community, family, work, and school. (See Holcomb et al.,1997.)
- # The **Drug Abuse Treatment Outcome Study (DATOS)** is using several different instruments. Some require lengthy structured clinician interviews; however, shorter versions have been and are currently being developed as part of the study. The original instruments include measures of physical, mental, and social functioning, as well as alcohol use-related problems. (See Horton, 1993.)
- # The **Colorado Client Assessment Record (CCAR)**, is a clinician-reported measure of client’s level of functioning and personal problem profile (See Hodges K. and J. Gust, 1995.) The **Texas Christian University Psychological and Social Functioning Scales (TCU)** has been used to assess client readiness for treatment, and psychological and social functioning. (See Knight et al., 1994.)

IV. CONCLUSIONS AND RECOMMENDATIONS

As part of its substance abuse treatment evaluation framework, CSAT recognizes the importance of client LOF for the treatment planning and evaluation process. LOF measures capture important client perspectives on health and daily living, and add to the validity of evaluations of treatment effectiveness. LOF measures can also serve an important basis for the development of quality of care indicators and treatment provider performance measures (Harwood et al., 1998). Client-reported outcomes (e.g., improved satisfaction with treatments received, improved health status, etc) are increasingly recognized as valid indicators of clinical outcomes, and have particular relevance to the consumers of treatment and their families.

It is also critically important to begin to understand the costs of treatment services as they relate to incremental improvements in client functional status. Cost-benefit and cost-effectiveness studies also need to incorporate the client and family perspectives (vis a vis LOF measures) in their definitions of optimal outcomes.

Client's functional outcomes provide key feedback to service providers as well. Within CSAT's Self-Adjusting Treatment Evaluation Model (SATEM), evaluation activities, such as assessing improvements in client functioning, are continuously "fed back" to treatment planners and providers. Through this process of continuous knowledge development and treatment improvement, service providers are able to adjust or modify treatment "inputs" to optimize client outcomes.

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