TITLE

Services to Clients in a Multifaceted Outpatient Addiction Treatment Program

AUTHORS AND AFFILIATIONS

James L. Sorensen, PhD,

University of California, San Francisco

San Francisco, CA

and

Jasmin Llamas, PhD,

Santa Clara University

Santa Clara, CA

DATE

October 2016

TABLE OF CONTENTS

EXECUTIVE SUMMARY

CHI Recovery (CHI) is a substance abuse treatment program focused on integrative health care that admitted its first client in June 2013. CHI provides many of its varied services through contracting with a unique blend of affiliated experienced providers rather than solely with CHI staff employees. Located in Northern California, the program attempts to incorporate all of the comprehensive set of treatments recommended by the Center on Substance Abuse and Addiction at Columbia University (Center on Addiction and Substance Abuse (CASA), 2012).

The CASA report both reflected and influenced the national change toward providing addiction treatment in the context of a wider caring network that includes medical treatment and a wide range of services. The CHI program is a community-based outpatient treatment programs that has taken on this challenge.
This is a report of a "process evaluation" aiming to understand the varied services received by the 18 clients who had entered treatment at the CHI program at least six months before data collection commenced in January 2016. The intent was to evaluate the degree that clients received the types of services that the program intended to provide within its treatment model. The evaluation used a logic model to address whether program activities with clients were implemented as intended. Client outcomes were not the focus.

We conducted a retrospective review of treatment provided to clients in all types of services provided through CHI. These included program activities viewed as: "Inquiry & Intake", "Assessment & Placement", "Physiological Health Care", and "Behavioral Health Care." Records were part of the CHI clinical databases, including records provided by CHI affiliate providers.
The clients ranged in age from 18 to 58, and they reported considerable use of substances. Nearly 90% had been in prior treatment for substance use disorder. Regarding Inquiry and Intake, CHI made plans for active and varied treatment with each client, taking into account a variety of issues that included, among others, physical conditions, prior treatment, trauma history, the combination of substances used, and

duration of use. The average client contracted for a total of over 120 sessions of care over six months, including medical, individual and group psychotherapy, case management, education, relational therapy (focusing on those relationships most impactful on the success or failure of the client, regardless of heritage ties), integrative health, and family multifamily therapy.

Regarding Assessment and Placement, clients reported multiple traumatic events and co-occurring diagnoses in addition to substance use disorders. Nearly three quarters of clients received an initial medically supervised detoxification (detox), and over half were assisted in entering a sober living environment. All clients met with a physician at least twice. Physiological Health Care, including detox support and pain management, was a large part of services provided, with clients averaging 42 sessions each. For Behavioral Health Care, (such as psychotherapy), clients received an average of 25 sessions of individual therapy and 27 sessions of group therapy. Client Outcomes were not the focus of the study, although in this planned-six month program retention averaged seven months. CHI, its clients, and their payers contracted for an average of 120 sessions, which were delivered and exceeded. Recommendations are included in this report.

INTRODUCTION

Multiple Problems of Addiction

People experiencing problems with addiction are often troubled by a host of associated issues, including difficulties with health, mental illness, general life skills, unemployment, and inadequate housing. The National Institute on Drug Abuse[1] documents the costs of the abuse of tobacco (U.S. Department of Health and Human Services, 2014), alcohol (Centers for Disease Control and Prevention, 2014), and illicit drugs (National Drug Intelligence Center. National Drug Threat Assessment, 2011) total more than $700 billion per year in the U.S. Co-occurring disorders, both mental and physical, are common. The National Survey on Alcohol Drug Use and Health[2] indicated that about 7.9 million adults in the United States had co-occurring disorders in 2014. (Center for Behavioral Health Statistics and Quality, 2015).

Need For Comprehensive Treatment Approaches

When people with a substance use disorder enter an addiction treatment program these associated difficulties also need attention. Recent changes in health care coverage, through the Patient Protection and Affordable Care Act (ACA), make it feasible for addiction treatment to address issues more effectively. Despite these recent changes, there are very few models for providing a level of comprehensive care that is affordable. The state of Vermont is piloting a "Hub & Spokes" model[3] for treating opioid dependency (Brooklyn, et al, 2016) in which regional designated specialty addictions treatment centers (the hubs) provide specialty health, home, and medication assisted treatment services, while teams of health care professionals (the spokes) provide prescribe buprenorphine in practices regulated as Office-Based Treatment Programs (OBOT). This model connects with the CHI Recovery model for care in interesting ways. Both are programs designed to address the need for intensive and comprehensive health care with

[1] https://www.drugabuse.gov/related-topics/trends-statistics#costs
[2] http://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf
[3] http://www.healthvermont.gov/adap/documents/HUBSPOKEBriefingDocV122112.pdf

medically-supervised treatment within outpatient settings. Both seek to deliver a treatment model for complex cases and to address the need for integrative care management suited to their communities.

Need for Evidence Based Addiction Treatment

While there have been great advances in understanding the causes and correlates of addiction, there remains a lack of evidenced-based care for those suffering from addictions. The CASA (2012) report notes that the inability to effectively treat addiction results in health and social problems such as homicides, suicides, child neglect and abuse, familial dysfunction, and unplanned pregnancies. CASA estimates that the impacts of addiction cost the government at least $468 billion each year stemming from hospital inpatient stays, crime, and lost productivity. Despite the individual, social, and financial costs of addiction, there remains a profound gap between the science of addiction and current treatment. The CASA report notes that most addiction treatment programs have not been subject to scientific evaluation and existing evidence of effective treatment has not been well integrated into many existing treatment programs. Given that few people with addictions receive effective evidenced-based treatment, with most treatment involving brief interventions lacking a long-term model of care (e.g., Chandler, 2012; Miller, Sorensen, Selzer, & Brigham, 2006; Willenbring, 2008), the need for comprehensive evidenced-based treatment is clear.

Table 1. Recommendations of CASA Report (2012)

1.	Incorporate screening and intervention for risky substance use, and diagnosis, treatment and disease management for addiction into routine medical practice.
2.	All medical schools and residency training programs should educate and train physicians to address risky substance use and addiction.
3.	Require non-physician health professionals to be educated and trained to address risky substance use and addiction.
4.	Develop improved screening and assessment instruments.
5.	Establish national accreditation standards for all addiction treatment facilities and programs that reflect evidence-based care.
6.	Standardize language used to describe the full spectrum of substance use and addiction.
7.	Condition grants and contracts for addiction services on the provision of quality care.
8.	Educate non-health professionals about risky substance use and addiction.
9.	Identify patients at risk in government programs and services where costs of risky use and addiction are high.
10.	Develop tools to improve service quality.
11.	License addiction treatment facilities as health care providers.
12.	Require adherence to national accreditation standards that reflect evidence-based care.
13.	Require that all insurers provide coverage for comprehensive addiction care.
14.	Expand the addiction medicine workforce
15.	Implement a national public health campaign
16.	Invest in research and data collection to improve and track progress in addiction prevention, treatment and disease management
17.	Implement the national institutes of health's (nih) recommendation to create a single institute addressing substance use and addiction

The CASA (2012) report emphasized our nationwide failure to provide treatment approaches which accomplish sustained sobriety. CASA made 17 "evidence-based" improvement recommendations which have influenced reforms in addiction treatment in the U.S. These points of "essential components" for substance abuse treatment set a high bar, previously unseen, for how treatment is conceptualized and implemented (see Table 1).

Need for Evaluation

When people are looking for a treatment program they often find insufficient information and may not have the education or expertise to ask the right questions that might best lead to appropriate care. The kinds of question s they have may include:

- It there evidence that this kind of treatment actually works?
- How much is it individualized for each client?
- If the client's needs change does the program alter its methods?

It is impossible for a program to be the source of all this evidence, as treatment programs are funded to deliver services, not to evaluate their effectiveness. Research has provided an evidence base to establish the efficacy of approaches to care, but the effectiveness of services… and even if the services are actually rendered… is usually unknown. It is important that program evaluation occurs in programs to identify the extent of services offered, as well as their effectiveness.

When a program begins operation it is in an exploratory mode, feeling its way along toward program activities that are feasible. At this stage a "process evaluation" can determine whether program activities have been implemented as intended. Such an evaluation can lead to changes in program operation that can improve the program's outcomes with clients and help it to have a greater impact in achieving its goals. When a program is attempting a significant change to an industry standard, as CHI is, this is particularly valuable.

Application of a Logic Model to Evaluation

A logic model is a systematic and visual representation of a program's resources and activities, as well as the changes hoped to be achieved (W.K. Kellogg Foundation, 2004). Logic models have become a staple for transforming general concepts into specific activities that are measurable. Logic models are rooted within theories of change to describe the sequence of activities to bring about change. These activities are linked to the results the program is expected to achieve. Logic models identify problems with a community and identify a strategy to create a vision for the future (or the desired results). Logic models are particularly useful to programs trying to implement changes, helping to create consensus around program goals, and laying out a plan of action with explicit steps to achieving those goals. Logic models have been used by addiction treatment programs to help plan and map program treatment goals. (e.g., Bar McRee, Kassebaum, Grimaldi, Ahmed, & Bray, 2007; Edwards et al, 1995; Law, Hogue, & Liddle, 2005).

Logic models help to explain what needs to be done and why, by clearly mapping a pathway to achieving program goals. The process of developing a logic model helps to identify any gaps in reasoning or areas where assumptions are off track. Additionally, logic models also aid in program evaluation by clearly identifying intended program outcomes. While there are many benefits of using logic models, logic models can only represent reality; they are not reality. Programs are not linear, and the dynamic relationships within programs rarely follow a sequential order (despite such representations in logic models). Logic models focus on expected outcomes and not unintended outcomes (positive, negative, or neutral). Logic models face the challenge of causal attribution, assuming causal connections, and do not prove direct cause-effect relationships. Other factors, not represented in the model, could be influencing outcomes. Logic models do not answer questions regarding program ethics or if a program should even be utilized (Taylor-Powell, Jones, & Henert, 2003). Despite these limitations, logic models can be an effective means to communicate general program expectations and goals, making them an ideal visual representation to guide program evaluation.

The CHI Recovery Program (CHI)

CHI Recovery is a program that attempts to incorporate all the standards recommended by CASA in the findings in its 2012 report. This attempt is of particular interest in the national discussion because a single program is striving to provide 1) comprehensiveness in treatment, 2) an innovative and accessible outpatient treatment design that addresses 3) the complexity of integrated care addressed within the model.

The program admitted its first client in June 2013. CHI was created to offer comprehensive outpatient evidence-based health care treatment for people with substance use disorders. Located in northern California, the CHI program attempts to incorporate all of the comprehensive set of treatments recommended by the Center on Substance Abuse and Addiction at Columbia University (Center on Addiction and Substance Abuse (CASA), 2012). CHI selected key findings from the CASA report to incorporate into the program development (see Table 2).

Table 2. Key Findings of the 2012 CASA Report Incorporated in CHI Recovery Program

1.	Physicians and other health professionals should be on the front line addressing this disease
2.	Screening and intervention are effective at addressing risky substance use and forestalling addiction
3.	Effective therapies to treat and manage addiction exist
4.	Comprehensive assessment of the extent and severity of the disease, determination of a clinical diagnosis, evaluation of co- occurring health conditions and the development of a tailored treatment plan
5.	Stabilization of the patient's condition via cessation of substance use and medically supervised detoxification, when necessary, as a precursor to treatment
6.	Acute care delivered by qualified health care professionals via evidence-based pharmaceutical and/or psychosocial addiction treatments, accompanied by treatment for co-occurring health conditions
7.	Chronic disease management to help the patient maintain the progress achieved during acute treatment and prevent relapse. the process should be medically supervised and should involve pharmaceutical and/or psychosocial therapies and continued management of co-occurring health conditions as indicated
8.	Support services including the provision of auxiliary services such as legal, educational, employment, housing and family supports, as well as nutrition and exercise counseling and connection to mutual support programs.
9.	The importance of tailored interventions and treatment

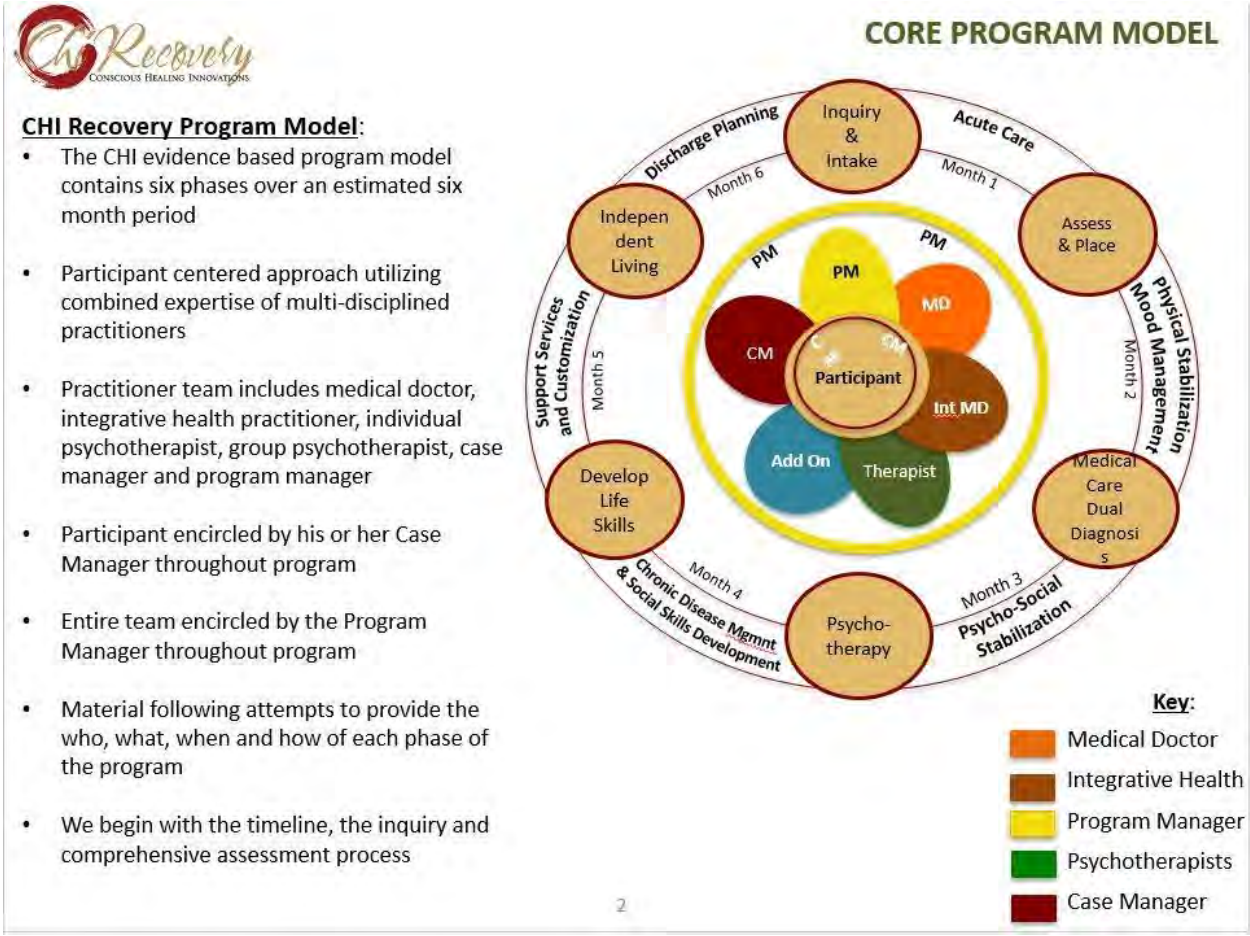
The program includes:

- Physician Oversight and Medical Care
- Customized Treatment Plans and Contingency Management
- Case Management and Contingency Care
- Provider Procurement: Arranging treatment by associated professionals
- Intensive Acupuncture or Acupressure

- Nutritional Counseling and Supplements
- Intensive Psychotherapy, including both individual and group therapy from a licensed, seasoned therapist
- Family Educational Retreats and Counseling
- Community Reinforcement: Nonprofit advocacy, sober living programming, life skills entry, educational access, and volunteerism. Community reinforcement refers to involvement in the community and not to the behavioral contingency management programs as used in Meyers & Miller (2001).
- Total Health Restoration—detox, nutritional supplements, and organ support; gym membership
- Family Education

Figure 1 displays the model of care that the program devised to describe its operation. The intent is to provide "wraparound care", that is to address dual diagnosis conditions and offer auxiliary services for families and friends, including marital counseling, psychiatric evaluations, and medical management, family therapy, and treatment of other physical or psychological disorders, such as eating and sleep disorders, self-harm syndrome, bipolar disorder, depression, and anxiety. CHI provides many of its varied services through contracting with a unique blend of licensed or certified private providers rather than solely with CHI staff employees. There is a small number of CHI staff (e.g. program manager, case manager, office manager, fiscal administrator). Provider affiliates include, among others, a physician, psychiatrist, clinical psychologist, child psychologist, marriage and family therapist, and licensed acupuncturist. The affiliates are paid fees by CHI for treating its clients. In this way the program is a blend of CHI staff and private providers, and it utilizes other educational and support services in its community. The program's aim is to provide high-quality care that is as intensive as a residential stay, but within the frame of an outpatient program. This approach can reduce costs for its consumers by eliminating expenses---such as real estate mortgages, facility maintenance, and licensing---that are associated with residential programs.

Figure 1: Core Program Model of CHI



This core program is customized at the beginning and throughout treatment to meet the changing needs of individual clients. CHI is a private program that is competitively priced. At the time of the evaluation the cost was approximately $10,000 per month for the first three months of the intensive outpatient program, with program fees that dropped significantly after the first three months. The program was designed to last for six months. Treatment affiliates were selected as seasoned professionals with appropriate licensure or certification in their specialty areas, and the providers met regularly in interdisciplinary case reviews to coordinate their approaches for each client.

Reflecting the principles of harm reduction (Marlatt, 1998) when drug and alcohol use occurs among its clients CHI has a practical and educational response. The program differentiates between a “slip” (using alcohol or drugs for up to three days, with a return to sobriety immediately following the use period) and

a “relapse”, defined as lasting more than 72 hours, or failure to return to sustained sobriety. When a slip occurs the program immediately reintegrates clients into treatment. When a relapse has occurred the client is often out of touch with the program but will still be brought back in, although with an understanding that further substance use can have more serious programmatic consequences. In both cases the CHI approach is to acknowledge the value of continuing care throughout the treatment episode rather than a standard termination of care when slips or relapses occur. If clients were in residential treatment, where there is less privacy, and clients’ substance use can have more serious consequences on the inpatient treatment environment, such continued participation in the program’s services would be much more difficult.

The CHI program is committed to providing evidence-based care, but its evaluation efforts have met with mixed success. At different times the program trialed and then discontinued the use of several validated measures it obtained from sources such as the American Psychological Association, or National Institute on Drug Abuse. CHI stopped using them because they took time and did not provide tangible program benefits.

The program also developed its own (proprietary) client summary, a Multi-Scale Assessment (MSA) tracking form, which was used routinely by some staff and providers, but not consistently enough to provide a marker of client progress. To document its work CHI had developed a one-page précis of clients’ progress in the program, but it was based in part on staff recollections rather than a formal review of program records, which might be more objective.

Purpose of Evaluation

This is a report of a process evaluation aiming to understand the services received by the 18 clients who had entered treatment at the CHI program at least six months before data collection commenced in January 2016. The intent was to evaluate the degree that clients received the types of services that the program intended to provide within its treatment model, indicating the program's ability to deliver this broad scope of treatment and to measure participant compliance to participate in such an extensive outpatient program. Client outcomes were not a focus, although some process measures, such as treatment participation and retention, can also be viewed as indicators of client success.

METHODS

Overview

To evaluate the degree that clients received the types of services that the program intended to provide within its treatment model we conducted a retrospective review of treatment provided to clients in all types of services provided through CHI. These included Inquiry & Intake, Assessment & Placement, Integrative Health Care, and Behavioral Health Care (categories are defined below). All records were part of the CHI databases, including records provided by CHI affiliate providers.

Deidentified records were provided by CHI staff. Regarding human subjects protections, the UCSF Institutional Review Board was consulted and indicated that self-certification by the investigators was indicated, and this was completed.

The evaluation proceeded in steps. Prepare for data gathering: Together with CHI staff, the evaluators examined the program's intake and client tracking instruments and clarified the program's standards for providing treatment. Adapt/create data collection instrument: The evaluators created a pilot evaluation instrument, obtained feedback from clinic, revised, and pilot-test the data collection instrument with three client records, working together with CHI staff. Collect data: The evaluators worked with CHI staff to complete the evaluation instrument, completing an instrument for each of the 18 CHI clients who were admitted to the program at least six months before data collection. Analyze data: The evaluators created a database and, working with CHI staff, clarified ambiguities in data, checked for consistency of records, and ran preliminary data summaries. Draft report: The evaluators drafted a report, with sections that encompassed an executive summary through future steps that could be taken in evaluation. The draft was shared with CHI staff requesting comments and suggestions. The evaluators then prepared a final written report as well as an oral presentation, both of which were provided to CHI.

Application of Logic Mode to CHI

CHI was formed around a Program Model that lent itself to application of a logic model. Figure 2 shows the logic model developed for the evaluation. The logic model provides a visual representation of the core components of the program as well as the general goals each component aims to achieve. The logic model developed guided the evaluation and analyses, helping to focus on those areas highlighted as primary goals by CHI.

Logic models are comprised of four components: inputs, activities, outputs, and outcomes.

Inputs or resources refer to the human, financial, and organizational resources for the project (e.g., case managers, doctors, program manager).

Activities are comprised of what the program will do with the resources. The activities are the interventions or "actions" intended to bring about the changes or the results, which for this project there were the four primary activities: Inquiry & Intake, Assessment & Placement, Physiological Health Care, and Behavioral Health Care.

Inquiry and Intake refers to activities that occur before and during the time that a client enrolls in the treatment program. These include services such as understanding the general problems of the client, providing information about the program's orientation, and arranging payment of program fees, assessing the client's problems in various domains, and making treatment plans to deliver the various services that are indicated early in the client's interaction with the program. Treatment plans included the types of services to be provided and an estimate of the number of sessions to be provided by staff and affiliates.

Assessment and Placement refers to activities that occur at the front end of treatment. These include services such as a physical examination and assessment by a physician, detox, and referral to a sober living environment (SLE).

Physiological Health Care refers to activities that occur to treat the clients' medical or associated health problems. These include services such as periodic medical evaluation, prescribing medications, acupuncture, massage, and pain management.

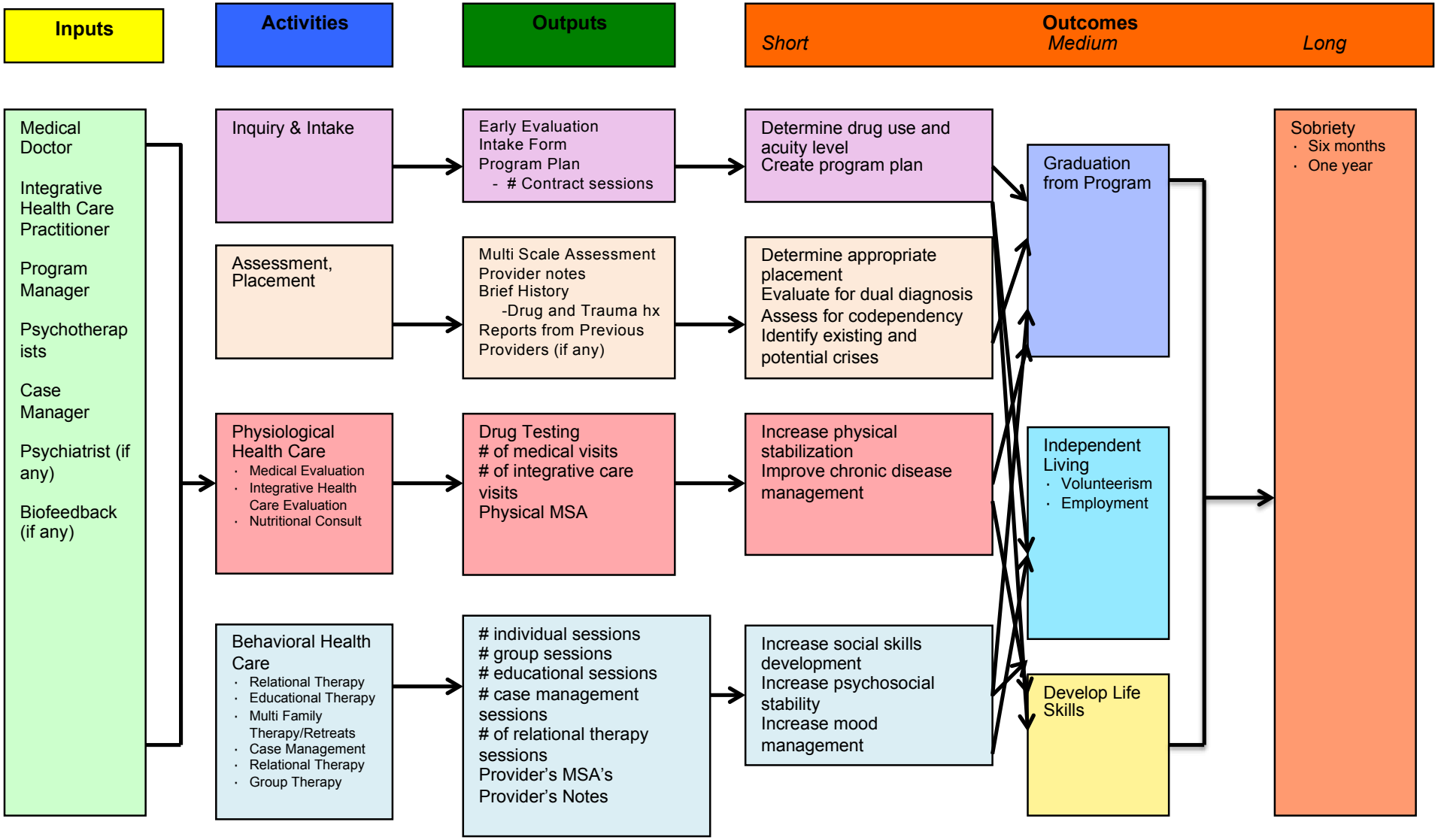
Behavioral Health Care refers to activities that occur to address addiction and mental health problems. These include services such as individual and group therapy, and case management.

Outputs and Outcomes are the intended results. Outputs are the direct products of activities or the "data." These include data points such as contracted program plan, assessments, number of medical and therapy visits, and drug tests. Outcomes are the specific changes expected from the programs (indicators). Outcomes are organized to denote the short, medium, and long-term goals expected to result from the program activities. Outputs provide the data by which to evaluate or determine if these goals have been achieved.

Given this was the initial evaluation stage, a formative evaluation was used. The purpose of a formative evaluation is to improve the program and track success. Formative evaluations focus on the activities, outputs, and short-term outcomes (if possible) of logic models for the purpose of monitoring progress and making mid-course improvements when needed. Formative evaluations address three primary areas:

1. **Context.** Context refers to how the project and programs have been functioning, exploring relationships and capacity to help highlight strengths and weaknesses of the programs.
2. **Implementation.** Implementation assesses the extent activities were executed as planned, since results are dependent on the quality and quantity of outputs, helping to identify what has happened in the program and why.
3. **Outcomes.** Outcomes refer to the extent to which progress is being made. Due to limited data, for this evaluation retention in the program and graduation were the only outcomes examined,.

Figure 2. CHI Evaluation Logic Model



Program Records Used in the Evaluation

Applying the logic model involved first learning the scope of records available at the program. Reflecting the collaborative-care goals of CHI, the program made use of multiple records systems. The CHI staff entered clinical service information in the Cliniko practice management software.[4] The program maintained a Master Account Spreadsheet that included services planned and services delivered for each client. CHI providers recorded service delivery using a variety of handwritten and computer-generated health records, which were kept in electronic and physical charts. Assessment instruments were also completed on hard copy, including the MSA tracking form that is a proprietary instrument of the CHI program.

Working with CHI staff, the evaluators examined the program's client records and clarified the purposes of the instruments used. The process was aided by an earlier internal evaluation in which the program had informally summarized evidence summarizing the clients, their problems, and their progress in treatment. Additionally, going back to the beginning of the program all instruments used in program records were considered.

Selection of Indicators

The records of CHI and associated providers were considerable, and for the evaluation we winnowed them down to use the logic model. The program had already created a one-page description of its services to initial clients, and this document provided a skeleton for applying the model. Program staff and affiliated providers were interviewed and also described the services that they believed were essential. The evaluators also reviewed samples of data collection forms. Many forms were screened out because they had been collected on a small number of clients or were collected early in the program's life and then dropped as they were not programmatically useful. The MSA tracking form was not developed until CHI's second year of operation, thus making it unusable to provide a marker of client progress for

[4] https://www.cliniko.com/

this evaluation. The variables that remained were placed in the logic model, and a draft client tracking database was created, using the full range of variables that might describe the program. We assessed the use of the tracking database with two clients, then five, ten, and then all clients remaining, each time sharpening the measurement to focus on the variables that reflected the logic model.

In the end we had a skeletal dataset measuring the 18 outputs listed in the logic model displayed in Figure 2. Outputs (such as forms and evaluations) resulted in a total of 133 variables. Not all variables were used, as they did not all serve as good evaluation indicators or were overly detailed (e.g.. most recent place of residence, dates forms were administered, types of co-occurring disorders). We used indicators that helped to achieve the three primary areas of the analysis: context, implementation, and outcomes.

Verification

Once the indicators were assembled and pretested, CHI staff gathered the information from the program records and entered it into the tracking database. To ascertain the accuracy of data provided by CHI staff, the evaluators conducted chart audits on 10% of records. For Client Characteristics plus each of the four types of service (Inquiry & Intake, Assessment & Placement, Physiological Health Care, and Behavioral Health Care), two client charts were randomly selected. With each chart the evaluator asked clinic staff to provide the count of each desired data point, and the evaluator indicated whether or not the count was an accurate report of what had been entered in the database. This method allowed clinical staff to view identified data, while the evaluation staff were not exposed to identifying information, which was not in the deidentified dataset. When differences were noted the clinicians examined the records to consider the source of the discrepancy. When a discrepancy was noted the evaluators and clinicians discussed the source of error and decided whether to revise the tally or view the information as inaccurate.

Data Reduction and Analyses

Data collected from the chart review were the focus of analyses. Outputs for each activity were gathered and entered into an SPSS file for further analysis. Due to the limited sample size, the focus of

this analysis was to provided frequencies and descriptive statistics; specifically, percentages of endorsement and averages on specific items as specified in the logic model. Qualitative variables providing descriptive information were not included in analyses and were interwoven into the analysis to provide context and description as appropriate (e.g. types of abuse and/or traumas).

RESULTS

Verification

The review of records indicated an accuracy rate of 97% for Client Characteristics, 92% for Inquiry & Intake, 100% for Assessment & Placement, 100% for Physiological Health Care, 90% for Behavioral Health Care, and 100% for graduation data, for a total mean accuracy rate of 97%. Thus the verification indicated general support that the database accurately reflected the program's records. The most frequent discrepancies were not due to inaccuracy of records, but rather to not finding the place in the record where the information was located.

Client Characteristics

A total of 18 clients were examined for the purposes of this evaluation (6 female, 11 male, 1 transsexual). Ages ranged from 18-58 (*M*=37.3; *SD*=12.8). Most clients (83%) were from California. Only one client reported currently having children under the age of 18. Most clients identified alcohol as a routine substance of use (89%). Over half reported using marijuana routinely (56%). Over a third of clients reported regularly using methamphetamines (39%). A third identified using crack or cocaine (33%) and heroin (33%) routinely. Over a quarter reported using MDMA ("ecstasy") routinely (28%). Average age of first use was 14, with a mean of 22 years of substance use. Almost all clients reported one previous experience with other programs (89%). See Table 3 for a review of client characteristics.

Table 3. Client Characteristics

Client Characteristics	Percent	Range	Means
Gender			
Female	33.3		
Male	61.1		
Trans	5.6		
Age		18-58	37.3
Current drug use			
Alcohol	88.9		
Marijuana	55.6		
Methamphetamines	38.9		
Crack or Cocaine	33.3		
Heroin	33.3		
MDMA	27.8		
Age of first substance use		7-21	14
Years of substance use		8-45	22
Prior treatment experience	88.9	0-5	2

Inquiry & Intake

During the intake process, clients completed an early evaluation form, intake form, and any pertinent legal forms (consents, agreements, and releases). Number of services contracted for were determine by client severity, based on responses from the intake forms. All but two clients completed the early evaluation form and intake form. All clients completed the necessary legal forms. All clients contracted for a six-month program. Only two clients were court-involved. Clients contracted for an average of 5 medical sessions, 27 individual therapy sessions, 27 group sessions, 18 case management sessions, 10 educational sessions, 5 relational therapy sessions, 27 integrative health sessions, and 2 multifamily therapy sessions. Contracted sessions during the intake process help to provide a plan, however depending on the needs of the client sessions could be "re-arranged" to meet the needs of the client. Sessions could be transferred into different areas as treatment progressed. For example, clients may be in less need of educational sessions and greater need of additional individual therapy. The ability to restructure the treatment plan demonstrates the flexibility and individualization of the CHI program (see Table 4). Most clients (72%) had a parent as a payer, and only five clients were self-paying for their treatment.

Table 4. Contracted Sessions

	Mean
Medical	5
Individual Therapy	27
Group Therapy	27
Case Management	18
Educational Sessions	10
Relational Sessions	5
Integrative Health	27
Multifamily	2
TOTAL	121

Assessment & Placement

During the assessment process clients completed the Brief History form providing a summary of their personal alcohol/drug history. A total of 15 of the 18 clients completed the brief history. Clients reported an average of three traumas in their lifetimes. Traumas spanned a breadth of experiences, including childhood neglect, emotional, physical, and sexual abuse, and family deaths. The average number of co-occurring diagnoses in addition to substance use was three, with 89% of clients having at least one additional co-occurring diagnosis (Table 5). Co-occurring disorders were defined as other disorders specified by the physician or therapist at assessment.

A third of clients (33%) had a co-occurring condition of anxiety or depression. Close to half of participants had PTSD (44%) and 22% suffered from insomnia. Most clients required detox when entering the program (72%), with 33% having a slow (above 2 weeks) and 39% having a rapid (2 weeks or less) detox. Based on initial assessments half of the clients were placed in a SLE. Most clients were drug tested by CHI (72%). Those not drug tested by CHI were drug tested by their SLE. All clients completed a medical evaluation by the doctor over the course of two appointments.

Table 5. Assessment and Placement

	Percent
Co-occurring Disorders	89
Detox	72
Slow	33
Rapid	39
Sober Living Environment	50
Drug Testing	72

Physiological Health Care

Clients, upon entering treatment, contracted for a set amount of physiological health sessions, which included medical and integrative health sessions. The average number of medical follow-up sessions, not including the 2 medical evaluation sessions occurring at assessment, was three (range: 0-14). All clients completed an initial client evaluation with the physician during the initial appointments. Between the initial medical evaluations and follow-up sessions 39% of clients completed the five sessions contracted for or more. The average number of integrative health sessions received was 42 sessions with a range of 25-84 sessions. Most clients (89%) met or exceeded the number of integrative health sessions contracted for. All clients received acupuncture, 50% received massage, and 39% utilized pain management. The average number of nutrition consults was two (range: 1-4). Table 6 includes total number of services initially contracted for, the number of the contracted sessions received, and any additional services added-on beyond the contracted number.

Table 6. Contracted, Received, and Add-on Physiological Health Care Services

	Mean Contracted Sessions	*Mean Contracted Received*	*Mean Add-ons Received*
Medical	5	5	0
Integrative Health	27	26	15
TOTAL	32	31	15

Table 7. Contracted, Received, and Add-on Behavioral Health Care Services

	Mean Contracted Sessions	*Mean Contracted Received*	*Mean Add-ons Received*
Individual Therapy	27	25	6
Group Therapy	27	25	7
Case Management	18	9	4
Educational Sessions	10	8	1
Relational Sessions	5	2	0
Multifamily	2	1	0
TOTAL	89	70	18

Behavioral Health Care

Behavioral health sessions included primarily individual therapy, case management, educational therapy, and group therapy. Most clients (78%) met or exceeded the number of individual therapy sessions contracted for, with an average of 25 individual sessions received (compared to an average of 27 sessions contracted for). The average number of individual sessions added on to the individual sessions contracted for was six sessions, however this ranged from 0-20 sessions. Half of all clients (50%) received the number of group sessions contracted for, with an average of almost 25 sessions received (compared to an average of 27 sessions contracted for). The average number of add-on group sessions was seven (range: 0-28). Most clients (94%) received less than the number of case management sessions contracted for; the average number of case management sessions received was nine (range: 1-18). However, 50% of clients ended-up requiring add-on case management sessions with an average of less than four sessions (range: 0-28). While the average number of case management sessions was 18, the program was designed so that half of these sessions (9) were to be used during the program and the other half used at follow-up. At the time of this report, follow-up sessions had not been tallied and could not be examined, however it appears the expected half of case management sessions were used (9). Most clients (61%) did not utilize all the contracted educational sessions (39% did received the all educational sessions contracted for); with the average number of educational therapy sessions received being just less than eight sessions (compared to the 10 contracted sessions). The average number of add-on educational sessions was less than two sessions. Most clients (89%) received fewer relational therapy sessions than contracted for, with the average client receiving less than two sessions (compared to the five contracted for). Most clients (61%) utilized all the multifamily therapy sessions contracted for, with the

average number utilized being just over one (compared to the two sessions contracted for). While not contracted for, crisis intervention sessions were also provided when needed. Most clients (61%) utilized at least one crisis intervention session with an average of close to six sessions (range: 0-24). Table 7 includes total number of services initially contracted for, the number of the contracted sessions received, and any additional services added-on beyond the contracted number. Table 8 highlights total mean services received including both physiological and behavioral health services.

Table 8. Total Services Received

	Mean Total Sessions Received
Medical	5
Integrative Health	42
Individual Therapy	32
Group Therapy	32
Case Management	13
Educational Sessions	10
Relational Sessions	2
Multifamily	1
Crisis Interventions	5
TOTAL	142

Slips and Relapse

Records indicate that six clients (33% of all clients) had a slip or relapse during the course of the program. Three people had a slip within the first 30 days of the program. Five clients had a slip within 31-90 days of the program. Two clients had a relapse and five had a slip within 91-180 days of the program. See Table 9 for review.

Table 9. Number of Slips and Relapses During the First 180 Days of the Program

	0-30 days	31-90 days	91-180 days
Slip	3	5	5
Relapse			2

Retention and Graduation

While all clients had contracted for a 6-month program, the program duration differed for each client based on the client's needs. The average program length was seven months, with program duration ranging from 3-12 months. As Table 10 indicates, 16 of the 18 clients (89%) remained in treatment for at least the contracted six months or more. CHI was originally designed as a six-month program, however many people stayed longer. For example, one client had four AWOLs. His program was extended so that he did eventually complete the program after 12 months. The CHI records indicated that all clients graduated from the program. Graduation was defined as clients meeting 90% of contracted services and completing a discharge with program staff. CHI aimed to maintain follow-up contact with clients. One client died a year following discharge, cause of death is not known. Three clients had documented post-treatment month 1 check-ins with a case manager.

Table 10. Program Length

	0-5 months	6 months	7-12 months
Number of Clients	2	3	13

Independent Living and Life Skills

Client records indicated that most clients were assisted via case management in developing life skills and independence. Clients were aided in securing housing in a SLE and seeking employment or entering school. At the time of this evaluation, no quantifiable tracking system was in place, which would allow us to monitor the numbers of these interactions. For this report, we referred to case manager case notes, which indicated sessions worked to cover building life skills and working towards independent living.

Case Examples

Study results above provide a numerical evaluation of the program; however it can be difficult to conceptualize how program components and services play out in practice. The following examples provide illustrations of what a client's typical experience might be going through the CHI program and are intended to illustrate the complexity of clients' treatment as well as the intensity of the services

received. These are fictitious illustrations based on overall client trends, rather than a specific client experience and are intended to provide the reader a qualitative description of the program process.

Bob

Bob is a 40 year-old male from California. His primary substance of choice is alcohol, although he uses marijuana as well. He has tried other treatment programs in his past, but he has been unable to maintain sobriety for any extended period of time. Bob is not currently gainfully employed and has had difficulty holding permanent employment for many years. His family has tried to support and aid Bob, but they have told him this is his last chance. Bob learned about the CHI program from family living in the area and agrees to participate in an intake. Bob participates in the initial intake session with the program manager. At this time, all pertinent forms are completed (e.g., legal forms, agreements, releases). During this time a contract is also developed outlining the number and type of sessions the client is contracting to participate in. Based on these initial evaluations his risk is assessed, and the client is referred and placed to a sober living environment (SLE); all subsequent drug tests are performed by the SLE. Based on medical evaluation by the physician, the client is placed on a Rapid Detox where detox occurs over a 2-week period. Through the medical evaluation the physician diagnosed a co-occurring condition of PTSD rooted in previous trauma. Following the client's initial visits, Bob engaged in four follow-up sessions with the physician. In addition, he attended 27 integrative health sessions, which included acupuncture sessions, massage, pain management, and nutrition consults. Bob participated in 28 individual therapy sessions and added an additional 2 sessions beyond the contracted amount. He participated in 10 case management sessions, 27 group therapy sessions, and 6 educational sessions. His family did not participate in relational therapy or multifamily therapy sessions. The client had one slip during the first 30 days of treatment and required two crisis intervention sessions, related to familial stressors. Bob graduated from treatment after being in the program for seven months. Bob has no additional reports of relapse or slips. Bob was able to successfully complete the program in seven months and was still sober 30 days after his discharge.

Sarah

Sarah is a 34 year-old female from California. She is currently using methamphetamine, alcohol, cocaine, and heroin routinely. This is her first attempt at treatment. Sarah has a long history of trauma and abuse. She was in and out of the foster care system, due to her mother's drug use and her father's regular absence due to being in jail. Most recently she broke up with her abusive boyfriend and has been homeless, sleeping on friends' couches. Her grandparents have intervened and offered to pay for treatment. Sarah agrees and meets with the program manager for her first intake session. At this time, all pertinent forms are completed (e.g., legal forms, agreements, releases), and a plan for treatment is developed outlining the number and type of sessions she will participate in over the course of the next six months. Due to her lack of housing, Sarah is placed to a sober living environment (SLE). After her medical evaluation by the physician she is placed on a Slow Detox where she will detox over the next 6-weeks. The physician has also diagnosed Sarah with Borderline Personality Disorder. During the course of her treatment, Sarah had two relapses over the course of the first three months of treatment. Sarah, while resistant at first, ended up actively engaging in her individual and group therapy sessions. Sarah engaged in 5 follow-up sessions with the physician and 25 integrative health sessions, which included acupuncture sessions, massage, pain management, and nutrition consults. She participated in 27 individual therapy sessions and added an additional 2 sessions beyond the contracted amount. She participated in 11 case management sessions, 26 group therapy sessions, and 5 crisis interventions (relate to her relapses). Sarah graduated from treatment after being in the program for nine months. Staff will follow-up with Sarah after her first 30 days out of treatment.

DISCUSSION

Main Findings

This evaluation aimed to understand the many and integrated services received by clients who were the first to enter the CHI program. CHI has an innovative approach that combines intake, assessment, treatment planning, and case management with services from a network of well-qualified health, mental health, and alternative health care providers from the local community, reminiscent of the new hub and spokes model being trialed in Vermont's health services The intent was to evaluate the degree that clients received the types of services that the program intended to provide within its treatment model. Client outcomes were not a focus, although some valuable information was gathered. A logic model (Figure 2) was used to represent the program's operation, measuring program inputs, activities, and outputs that reflected CHI's core program model, with types of service that illustrated **Inquiry and Intake, Assessment and Placement, Physiological Health Care, and Behavioral Health Care**.

The clients seen were quite varied in age, with considerable use of substances. The majority of clients indicated they used alcohol, and the majority indicated use of marijuana. Nearly 90% had been in prior treatment for substance use disorder.

Regarding **Inquiry and Intake**, CHI made plans for an active and varied treatment with each client. The average client contracted for a total of over 120 sessions of care over six months, including medical, individual and group psychotherapy, case management, education, relational therapy, integrative health, and family therapy.

Regarding **Assessment and Placement**, the 15 clients who completed a Brief History assessment indicated both multiple traumatic events in their lifetime and multiple co-occurring diagnoses in addition to substance use disorders. Nearly three quarters of clients received an initial detox, and over half went into a SLE. CHI provided drug testing to the preponderance of clients (the timing and results of drug testing are not reported here).

Regarding **Physiological Health Care** (including medical and integrative health care visits), all clients met with a physician at least twice for medical evaluations, and on average clients engaged in five face-to-face medical sessions during treatment. Integrative health care was a large part of services provided, with clients averaging 42 sessions per client, most frequently for acupuncture and massage.

Regarding **Behavioral Health Care**, (including individual therapy, case management, educational therapy, and group therapy) was also a mainstay of services provided, although in varying amounts. The average number of sessions received was 25 individual therapy, 27 group therapy, 9 case management, 8 educational, and 1 multifamily therapy session.

Client Outcomes were not the focus of the study. Information that may be considered outcomes includes retention in treatment, recorded slips or relapses, and likelihood of graduation. In this planned-six month program retention averaged seven months, with the shortest stay 2 months and the longest 12 months. Retention may be longer, because the evaluation included individuals who were admitted as recently as six months before the evaluation, and some of these were in still receiving treatment when data collection occurred. A slip or relapse occurred with about a third of the clients. While days clean and sober were not directly tracked, we assume that most clients were sober throughout the program. Regarding **Contracted and Delivered Services**, CHI, its clients, and their payers contracted for a large amount of services at the beginning of treatment, in the range of 120 sessions of medical, individual and group therapy, case management, education, relational therapy, integrative health, and multifamily therapy. While it is impossible to foresee what services a client will need, program records indicate that the CHI program provided this level of service or more (see Tables 6-8). The number of actual sessions can be lessened by early dropout or increased by staying beyond the contracted period. The contracted number is essentially an agreement about estimated amount of services planned, made at the start of treatment. The use of add-on services provides a mechanism for adjusting the original contracted services to account for changes in type or amount of services required.

Comparison with Other Evaluations

This evaluation joins several others that have used a logic model to portray the planned interventions in drug abuse treatment programs and connect the interventions with measurable activities. In one of the few evaluations of drug abuse treatment using a logic model Law et al (2005) found that about half of the planned services were delivered. In contrast, in this evaluation the level of services planned for the most part matched or exceeded the services that were contracted for, which is a positive sign. In the drug abuse treatment field dropout from treatment is generally considered a negative outcome. In the CHI program clients averaged longer than their planned stay, which we view as a positive comparison.

Clearly there is a need for comprehensive treatment programs for the multiple problems that accompany addiction, and the CHI approach is ambitious in its pursuit of addressing these multiple problems in the context of outpatient treatment. Compared with inpatient settings, outpatient programs have less control over the daily experience of their clients, which may be a handicap. On the other hand the outpatient approach has considerable flexibility, in that it can link clients to the evidence-based treatments and settings available in the community. For example, a busy psychotherapist can see CHI clients in their usual office settings rather than going to a central treatment program. The outpatient focus can also allow for more individualized treatment planning using a broader spectrum of services for clients, rather than treating all in the same formatted residential program. The many "add on" sessions that were provided give some indication of the ability of the program to flex as the needs of clients change. This is a capacity worth further review and development.

Limitations and Next Steps

This evaluation has a number of boundary conditions that can be expanded in further study. CHI is a relatively new program that evolved based on early experiences. Few indicators were available to reflect the organization's performance on the treatment areas in its program model. Different affiliated providers used, of course, different record-keeping systems to document their activities, which made it difficult for the evaluation to compare across providers anything more than that a session occurred and on what date.

Additionally the 18 clients in the evaluation is sufficient for description, but far too low to make comparison across clients or types of services provided. The evaluation did not attempt to focus on outcome indicators, although retention, graduation rates, and number of slips and relapses were gathered. Although drug screens were performed for clinical purposes, the results of the tests are not part of the research reported here, as some clients were tested at residences (such as SLEs) where results were not part of the CHI records, and with most clients there was not a consistent timing of tests relative to admission (for example tests may have been conducted to verify suspected drug use rather than monthly from admission). It would be useful to develop indicators for Development of Life Skills, and Independent Living, parts of the CHI program model that were not evaluated in this study. Finally the program provided a number of additional support services---such as accompanying clients to appointments---that were not in the clinical records, and these services were also important parts of the program. Future evaluations can expand on these study limitations as well as make comparisons to other approaches to care.

We also note that providing multifaceted services in an outpatient "hub and spokes" model is a challenging mission. The current treatment systems may be designed so that intensive treatments are primarily residential. For example, licensing or certification seems necessary if the program is to be a referral site for courts and reimbursed through third-party payers. A key problem has been that the licensing requirements are replete with standards made for safe facility operation, such as smoke and fire alarms. The outpatient certification issues are similar, since CHI is not a brick and mortar facility, but the regulations assume that all services will occur under one roof. CHI's client services occur in the private offices of licensed clinicians throughout the community. For smoother operation of this kind of facility state requirements for licensing or certification may need to change, and that is a long process. At the time this report is being completed, CHI is again attempting certification by the State of California and is centralizing more of their administrative services but challenges remain, given the outsourced model used in the delivery of care.

RECOMMENDATIONS

The evaluation findings produce some suggestions for the CHI program to consider.

- First, the program is to be acknowledged for providing a wide range of evidence-based treatments and services to its clients and following through on its treatment plans for delivering multidisciplinary care. The program is pushing the limits of what can be offered in an outpatient setting, retaining high standards of health care and developing innovative ways to deliver these treatments. Addiction treatment as a field clearly needs comprehensive treatment programs with approaches like this.
- Second, it could be useful to examine the CHI model (Figure 1) to consider how the model, and documented services provided might be brought into closer accord. For example, individual and group psychotherapy comprised a large proportion of services documented, while there was very little in the clinical treatment records about services in the area of developing life skills and independent living. It may be that the immediate needs for rehabilitation are the highest priority, so clients are in most need of services for psychosocial stabilization and disease management services that were provided.
- Third, the CHI program may also want to examine the balance in service areas. For example multi-family therapy is one element in the treatment plan, but it rarely appeared as a documented service.
- Fourth, and related to the prior recommendation, in addition to examining the balance of service areas, the program may want to use the data in this report to consider whether to adjust the intensity of services up or down in its planning, to consider why the amounts are high or low from the programmatic and client viewpoint. This is beyond what the current evaluation was able to accomplish, and it is best done by the CHI leadership, which understands the program's short- and long-term goals.

- Fifth, a suggestion in program record keeping is to improve the tools for gathering demographic and background information. For example, race, ethnicity, and sexual orientation did not appear to be recorded consistently.
- Sixth, we also want to encourage the program in developing its Multi-Scale Assessment, which seems to be useful to both staff and professional affiliates. The assessment may have promise as a clinician-friendly tool that provides an objective way to monitor client progress.
- Seventh, the program may want to consider better defining program 'graduation', as all clients were indicated as graduated, which makes the term perhaps less meaningful.
- Eighth, to the degree possible it would be helpful to make use of a more comprehensive electronic health record system. We recognize that the collaborative nature of the services provided makes for a naturally diverse set of treatment records, yet striving toward more standard definitions of terms and operational issues would be of real benefit for the program, both in its procedures and its potential for generating useful evaluation research.

REFERENCES

Babor, T. F., McRee, B. G., Kassebaum, P. A., Grimaldi, P. L., Ahmed, K., & Bray, J. (2007). Screening, Brief Intervention, and Referral to Treatment (SBIRT) toward a public health approach to the management of substance abuse. *Substance Abuse*, *28*(3), 7-30.

Brooklyn , J. R., & Folland, A. (2016, April). Vermont's hub and spoke model for opioid addiction. Presented at American Association for the Treatment of Opioid Dependence, Baltimore, MD.

Center for Behavioral Health Statistics and Quality. (2015). Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health (HHS Publication No. SMA 15-4927, NSDUH Series H-50). Retrieved from http://www.samhsa.gov/data/.

Center on Addiction and Substance Abuse (2012) Addiction medicine: Closing the gap between science and practice. CASA: The National Center on Addiction and Substance Abuse. New York, NY., 573 pages. http://www.centeronaddiction.org/addiction-research/reports/addiction-medicine

Centers for Disease Control and Prevention. (2014, April 17). Excessive Drinking Costs U.S. $223.5 Billion. www.cdc.gov/features/alcoholconsumption/. Updated April 17, 2014. Accessed March 9, 2016.

Chandler, R. K. (2012). Addiction, the brain, and evidence based treatment transcript. [Online]. Retrieved June 1, 2012 from http://www.nij.gov.

Dennis, M., Godley, S. H., Diamond, G., Tims, F. M., Babor, T., Donaldson, J., Liddle, H., Titus, J. C., Kaminer, Y., Webb, C., Hamilton, N., & Funk, R. (2004). The Cannabis Youth Treatment (CYT) Study: main findings from two randomized trials. *Journal of Substance Abuse Treatment, three* *7*(3), 197-213.

Dennis, M., Titus, J. C., Diamond, G., Donaldson, J., Godley, S. H., Tims, F. M., ... & Godley, M. D. (2002). The Cannabis Youth Treatment (CYT) experiment: rationale, study design and analysis plans. *Addiction*, *97*(s1), 16-34.

Edwards, E. D. Seaman, J. R., Drews, J., & Edwards, M. E. (1995) A community approach for Native American drug and alcohol prevention programs: A logic model framework. *Alcoholism Treatment Quarterly, 32(2),* 43-62.

Law, L, Hogue, A., & Liddle, H. A. (2005). Multidimensional implementation evaluation of a residential treatment program for adolescent substance abuse. *American Journal of Evaluation, 26(1),* 77-93.

Marlatt, G. A. (Ed.) (1998) *Harm reduction: p ragmatic strategies for managing high-risk behaviors.* New York: Guilford Press.

Meyers, R. J., &Miller, W. R. (2001) *A community reinforcement approach to addiction treatment*. Cambridge: Cambridge University Press.

Miller, W. R., Sorensen, J. L., Selzer, J. A., & Brigham, G. S. (2006). Disseminating evidence-based practices in substance abuse treatment: A review with suggestions. *Journal of Substance Abuse Treatment, 31(1),* 25-39.

National Drug Intelligence Center. (2011) National Drug Threat Assessment. Washington, DC: United States Department of Justice; 2011. www.justice.gov/archive/ndic/pubs44/44849/44849p.pdf

Substance Abuse and Mental Health Services Administration's (SAMHSA) Center for the Application of Prevention Technologies contract. Reference #HHSS831200024I-42002.

Taylor-Powell, E., Jones, L., & Henert, E. (2003) *Enhancing Program Performance with Logic Models*. University of Wisconsin-Extension: http://www.uwex.edu/ces/lmcourse/

U.S. Department of Health and Human Services. (2014) The Health Consequences of Smoking—50 Years of Progress. A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014. www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf

Willenbring, M. L. (2008a). Alcohol disorders: Does the treatment field have the courage to change? *Addiction Professional, 6(5),* 13-19.

W.K. Kellogg Foundation. (2004). *W.K. Kellogg Foundation logic model development guide*. W.K. Kellogg Foundation: Battle Creek, MI.

ACKNOWLEDGEMENTS

The evaluation was supported by a personal services contract with CHI Recovery. The evaluators are grateful for the assistance of Ms. Sarin Pakhdikian in data gathering, and Ms. Ida Chen in formatting and technical presentation, as well as the support of CHI Recovery and its staff and affiliates in working with us. This work represents the views of the evaluators and not CHI Recovery, Santa Clara University, or University of California, San Francisco.