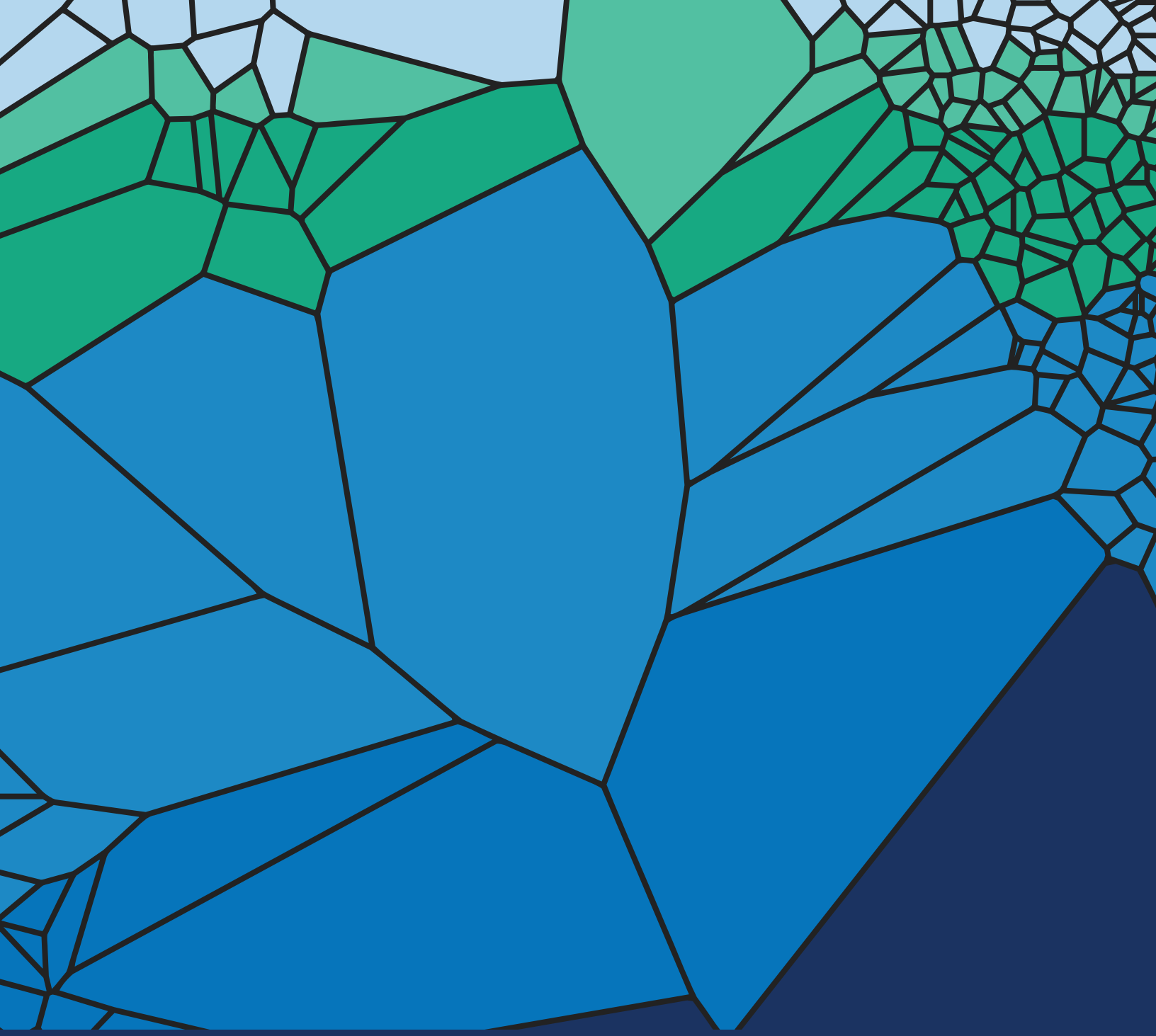

State of Performance Indicators in SUD Treatment: **How Does Kentucky Measure Up?**

College of Medicine
Department of Behavioral Science

Center on Drug and Alcohol Research

Acknowledgments

PREPARED BY

Jennifer Cole, Ph.D., TK Logan, Ph.D. , Martha Tillson, Ph.D., Michele Staton, Ph.D., & Allison Scrivner, M.S.

University of Kentucky,
Center on Drug and Alcohol Research,
Department of Behavioral Science,
College of Medicine
333 Waller Avenue, Suite 480
Lexington, KY 40504
http://cdar.uky.edu/bhos

Corresponding Author:
Jennifer Cole, Ph.D.
jecole2@uky.edu
(859) 257-9332

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Executive Summary

Background

Efforts to measure and document successful client outcomes as well as monitor the performance and quality of substance use disorder (SUD) programs have been increasing in the past decade. Performance indicators provide critical feedback to providers and health care systems to inform improvements in care and assess whether progress toward organizational goals is occurring (Conway & Clancy, 2009). Performance indicators also provide accountability by providing consumers and payers with information on how providers are delivering services to client populations and communities (IOM, 2015; McLellan et al., 2007).

In 2022, the Secretary of the Justice and Public Safety Cabinet was charged with contracting for external performance reviews of SUD treatment and recovery programs in Kentucky. The purpose of this Performance Indicator Project Report (i.e., Project 1) is to: (1) identify key SUD performance indicators recommended by the research literature; (2) describe Kentucky's current efforts to measure performance indicators for SUD programs; (3) conduct a secondary data analysis of existing client-level outcome data from outcome evaluations from three types of SUD programs; (4) present profiles of performance indicators for each CMHC region, all of Recovery Kentucky programs, and Department of Corrections prison SAP using existing data; and (5) provide recommendations for Kentucky's use of performance indicators of SUD programs. The Performance Indicators Project (i.e., Project 1) was one of four research projects undertaken by UK CDAR in 2023 to document the barriers to SUD program entry and engagement.

Method

Research literature and practice guidelines for performance indicators were searched for within scholarly databases and online google searches. Additionally, reference lists of identified articles were searched to identify relevant articles. Within several identified articles, performance indicator efforts at the national or state level were mentioned, and the source documents for these efforts were located online. Abstracts of articles were reviewed to determine if articles were about the conceptual frameworks for performance indicators or empirical data on performance indicators.

The Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities (DBHDID) Performance Indicator Implementation Guide was accessed to examine the performance indicators for SUD treatment currently collected in relation to the state's contracts with the community mental health centers (CMHCs).

The secondary data analysis conducted for this project uses data from three SUD program outcome evaluations: (1) Recovery Center Outcome Study (RCOS) for Recovery Kentucky programs, (2) Kentucky Treatment Outcome Study (KTOS) for publicly-funded SUD treatment in community mental health centers (CMHCs), and (3) Criminal Justice Kentucky Treatment Outcome Study

(CJKTOS) for Department of Corrections (DOC) substance abuse programs (SAP) in jails, prisons, and community corrections facilities. Each outcome evaluation involves the collection of client-reported status in SUD program settings by using an evidence-based assessment via an online survey (i.e., intake or baseline survey) and at follow-up by the UK CDAR team via telephone. The length of time between the intake survey and follow-up surveys differs depending on the study.

To present client-level performance indicators statewide across three Kentucky SUD program outcome datasets as well as by specific program type (see Appendix C) and CMHC region (see Appendix D), data sets for multiple years of outcome evaluation data were merged for each study. The literature review on performance indicators (see Appendix A) informed the selection of variables to examine and identification of variables that were common across all three outcome evaluations, when possible. The multi-year datasets include data from the following report years: RCOS, report years 2015 – 2023, [1]KTOS, report years 2017 – 2023,[2] and CJKTOS, report years 2018 – 2022.[3] Intake surveys completed between these dates: October 2012 through June 2021 for RCOS, July 2014 through June 2021 for KTOS, and March 2016 through December 2019 for CJKTOS. Data in this main part of the report is for clients with intake and follow-up surveys. The primary analysis focuses on the change in targeted variables from intake to follow-up. Additionally, within the section on change in targeted factors, trend graphs for major outcomes at intake and follow-up for the three outcome evaluations are presented by year.

Results

Findings are presented in response to the five objectives of Project 1.

Literature review. The literature review on performance indicators for SUD treatment, presented in its entirety in Appendix A, discusses the uses of performance indicators along with a brief discussion of the evolution of performance indicators within SUD treatment. The findings highlight the use of Donabedian's framework (1980) for performance indicators in medical care applied to SUD treatment and has evolved to include five domains: (1) structure, (2) access, (3) process, (4) outcomes, and (5) client perceptions of care (Garnick et al., 2006). The Institute of Medicine (IOM) committee (2015), which examined psychosocial interventions for mental health disorders and SUD, stated that recovery (from a mental or substance use disorder) is a more meaningful objective and domain than solely abstaining/reducing substance use or a reduction in target symptoms. The IOM committee conceptualized outcomes as fitting into three categories: target symptoms (e.g., depression, anxiety), functional status (performance on daily living tasks, participation in work/school, maintaining relationships, and community involvement) and well-being (life satisfaction, quality of life, recovery, self-determination, and client

[1] Report years 2015 – 2023 for RCOS correspond to intake surveys completed between October 2012 through June 2021 and follow-up surveys conducted between October 2013 - June 2022.

[2] Report years 2017 – 2023 for KTOS correspond to intake surveys completed between July 2015 – June 2021 and follow-up surveys conducted between July 2016 - June 2022.

[3] Report years 2018 – 2022 for CJKTOS correspond to follow-up surveys conducted between April 2017 – August 2021. Follow-up surveys are conducted among a stratified random sample of participants released one year previously, regardless of treatment intake date. Intake surveys were completed between March 2016 – December 2019.

perceptions of care). However, current performance measurement efforts largely omit these client-level outcomes of multiple dimensions of clients' functioning and well-being because of the infeasibility of collecting these data (ASAM, 2014). Therefore, measurement of treatment outcomes would benefit from measuring these wide-ranging aspects of clients' lives before and after treatment. This framework for examining client outcomes was adopted in the secondary data analysis of the three outcome evaluations. Also, the literature review in Appendix A provides numerous real-world examples of SUD performance indicators and identifies numerous research gaps and priorities for improving performance indicators in SUD treatment, in general, along with specific recommendations for Kentucky's efforts.

Kentucky's current performance indicators for SUD treatment. The three indicators used by KY DBHDID for substance use disorder treatment from data reported by CMHCs every month are all process indicators: (1) count of individuals 12 and older receiving outpatient SUD treatment services, (2) count of mental health and SUD outpatient services provided between admission and discharge, and (3) count of outpatient TEDS episodes that lasted 30 days or longer. Added to these process measures, measures for client-level outcomes and client perceptions of care that are collected in the three annual client-level outcome evaluation studies are described in the context of the major domains of outcomes described by IOM (2015). The special projects conducted in 2023 by UK CDAR, under contract with the state, add to the performance indicators for SUD treatment/programs. These performance indicators are described in Table 4.

Secondary data analysis from three client-level outcome evaluations. Key findings from the three multi-year outcome evaluations for Recovery Kentucky (RCOS), SUD treatment in CMHCs (KTOS), and the Department of Corrections SAP (CJKTOS) are presented in four major sections: (1) Description of clients at intake, (2) Change in targeted factors (i.e., outcomes) from intake to follow-up and trend graphs for outcomes at intake and follow-up by year, (3) Client perceptions of care reported at follow-up, and (4) Case-adjusted outcomes at follow-up. Within each of these major sections, the results are presented in subsections.

Description of clients at intake. To appropriately contextualize the program outcomes, it is necessary to consider the characteristics of clients as they enter SUD programs. In this first section of results, sociodemographics, substance use, mental and physical health, involvement with the criminal justice system, education, employment, living situation, and recovery supports as clients enter SUD programs are presented for RCOS (n = 15,716), KTOS (n = 31,621), and CJKTOS (n = 19,433).

Clients' involvement with the criminal justice system is mandatory for clients in SAP because of the nature of the program. The majority of clients in Recovery Kentucky and SUD treatment in the CMHCs self-report involvement with the criminal justice system. For example, at intake (before entering the program or before being incarcerated for CJKTOS), clients reported spending more than a month out of the prior 12 months (for KTOS and CJKTOS) and more than two months out of the prior 6 months (for RCOS) incarcerated. The majority of

clients are between the ages of 30 and 49 years old. Racial diversity was low, with between 82.6% and 92.1% of clients in the studies self-reporting being White, which is compared to 82.4% of Kentucky residents being White (alone) in 2020. The racial composition of SAP clients is more diverse than in Recovery Kentucky and SUD treatment in CMHCs. Men are more than half of the clients across the three studies. Four-fifths of SAP clients are male versus more than half of clients in Recovery Kentucky and SUD treatment in CMHCs. Most clients had children. Mental health problems are reported by the majority of Recovery Kentucky clients and by sizable minorities of clients in CMHCs and SAP. Chronic pain is an issue for one-fourth to one-third of clients. Highest level of education is lower for clients in the three outcome evaluations than in the general population of Kentucky; 87.7% of Kentucky residents (ages 25 and older) reported being a high school graduate in 2020 (U.S. Census, 2023). Economic hardship and homelessness were experienced by more than one-fourth but less than one-half of each study sample. The majority of clients reported they had recent contact with someone who was supportive of their recovery and the majority of clients believed their chances of staying off substances were moderately good or very good. A minority of clients had attended mutual help recovery group meetings before entering the program (or being incarcerated for CJKTOS).

Polydrug use and severe substance use disorder (SUD) were the norm for Recovery Kentucky and SAP clients, whereas a little less than half of clients in SUD treatment in CMHCs reported polydrug use and half of clients in CMHC had symptoms of severe SUD at intake. Other aspects of substance use showed greater risk (e.g., overdose, IDU, prior episodes of SUD treatment) for more clients in Recovery Kentucky and SAP compared to clients in CMHCs. Clients in SAP had the highest employment rate, perhaps largely due to higher percentage of male vs. female clients.

Change in targeted factors (i.e., outcomes) from intake to follow-up. In all three outcome evaluation studies, there were significant improvements in substance use and other targeted factors (e.g., symptoms, functioning, well-being, and recovery support) among individuals in the follow-up samples: RCOS (n = 2,417), KTOS (n = 7,158), and CJKTOS (n = 1,150). Of primary concern to SUD programs/treatment is the rate of return to substance use among clients. In all three outcome evaluations, there were statistically significant as well as practically significant reductions in problem use of alcohol and illicit drug use. Use of two classes of drugs that are of particular importance in the state are opioids and methamphetamine. In all three outcome evaluations, there were statistically significantly smaller proportions of clients reporting use of opioids and methamphetamine at follow-up than at intake. Furthermore, in all three outcome evaluations, the percent of clients with no SUD (per DSM-5 criteria) was significantly higher at follow-up than at intake.

Other important outcomes discussed in the literature on performance indicators were included in the three outcome evaluations: symptoms, functioning, well-being, and recovery support. Regarding symptoms, there were significant reductions in mental health problems from intake to follow-up. Regarding functioning, there were significant reductions in involvement with the criminal justice system and

significant reductions in homelessness and economic hardship (for the two studies in which they were examined). For Recovery Kentucky and SAP clients, a significantly higher percentage of clients were employed at follow-up than at intake. For the two outcome evaluations that included subjective quality of life as a measure, there were statistically significant increases in clients' subjective quality of life, which the performance indicator literature frames as a component of well-being. In all three outcome evaluations, significantly more individuals reported attending mutual help recovery meetings as well as having recent contact with someone who supported their recovery at follow-up than at intake. The only outcome that did not show improvement in one of the outcome evaluations (KTOS) was the percent of clients who reported having employment at follow-up.

Client perceptions of care reported at follow-up. Clients' average ratings of the overall quality of the programs were high, from a low average of 7.5 (for SAP) to a high average of 8.6 (for Recovery Kentucky), with 1 representing the worst and 10 representing the best possible. Follow-up surveys with individuals in the three outcome evaluations asked about specific aspects of their experience in the programs. Perhaps even more importantly, the majority of clients in all three outcome believed the program was successful or worked well for them. The vast majority also reported they would refer a close friend/family member to the program, which reflects the high value they place on the program. Moreover, individuals in all three outcome evaluations gave high average ratings for items about being treated with respect, good communication between staff and clients, and the perceived effectiveness of the program for them. Participants in RCOS and KTOS also gave high average ratings for shared decision-making and the quality of the therapeutic alliance; participants in CJKTOS were not asked questions about shared decision-making and the therapeutic alliance.

Case-adjusted outcomes at follow-up. Clients entering different types of programs may enter with different levels of severity of SUD, comorbid conditions, vulnerabilities, and risks. Therefore, it is important to take these different levels of severity into account when examining client-level outcomes. Multivariate analysis of two key client outcomes (e.g., having symptoms consistent with a substance use disorder, and number of positive dimensions of recovery) was conducted for each study to adjust for sociodemographics and indicators of severity of illness.

In all three outcome evaluation datasets, having prior treatment episodes was positively associated with the odds of having a mild, moderate, or severe SUD (vs. none) at follow-up. In KTOS and CJKTOS, the number of symptoms of SUD at intake were also positively associated with having a mild, moderate, or severe SUD (vs. none) at follow-up.
Having more positive dimensions of multidimensional recovery at follow-up was significantly greater for individuals with a higher number of positive dimensions of recovery at intake, greater for women in KTOS and CJKTOS, and lower for individuals who had prior episodes of SUD in KTOS and CJKTOS. Older RCOS clients had higher positive dimensions of recovery at follow-up.

Conclusions and Recommendations

Many states' performance indicator efforts focus on access and process of SUD treatment, with less attention to client outcomes, because of the cost, lack of human resources, and difficulty of carrying out systematic evaluations (Harris et al., 2009). Thus, Kentucky's multi-year client-level outcome evaluations are a valuable resource for understanding and informing publicly-funded SUD treatment in the state.

Clients entering publicly-funded SUD programs in Kentucky typically engage in polydrug use, have symptoms consistent with a substance use disorder, have comorbid mental health problems, have recent involvement with the criminal justice system, are between the ages of 30 and 49, are White, and are parents. Sizable minorities of clients report economic hardship, unemployment, homelessness, and chronic pain as they enter SUD programs.

In all three outcome evaluation studies, there were statistically significant improvements in substance use and other targeted factors (e.g., symptoms, functioning, well-being, and recovery support). Of primary concern to SUD programs/treatment is the rate of return to substance use among clients. In all three outcome evaluations, there were statistically significant as well as practically significant reductions in problem use of alcohol and use of illicit drugs as well as the percent of individuals having a symptoms consistent with a SUD from intake to follow-up. In all three outcome evaluations, there were statistically significant improvements in important outcomes (other than return to substance use) discussed in the literature on performance indicators: symptoms, functioning, well-being, and recovery support.

The measures for perceptions of care included in the three outcome evaluations go beyond asking clients to give a consumer satisfaction rating in that clients were asked to rate multiple specific aspects of their experiences in the programs. This is important because client satisfaction ratings in health care and mental health care are well known to be high and do not necessarily reflect negative experiences individuals may have had with their care (Williams et al., 1998). Perhaps even more importantly, the majority of clients believed the program was successful or worked well for them. The vast majority also reported they would refer a close friend/family member to the program, which reflects the high value they place on the program. Moreover, individuals in all three outcome evaluations gave high average ratings for items about being treated with respect, good communication between staff and clients, and the perceived effectiveness of the program for them. Participants in RCOS and KTOS also gave high average ratings for shared decision-making and the quality of the therapeutic alliance; participants in CJKTOS were not asked questions about shared decision-making and the therapeutic alliance.

In summary, findings from the three multi-year client-level outcome evaluations show significant and meaningful positive improvements in the lives of individuals who participate in publicly-funded SUD treatment/programs in Recovery Kentucky, community mental health centers, and Department of Corrections SAP. Positive changes in clients' lives in a variety of areas including decreased substance use, improved mental health, decreased involvement in

the criminal justice system, and improved living circumstances, recovery support, and subjective quality of life at follow-up.

One of the advantages of having multi-year client-level outcome evaluations is it allows for examination of changes in client characteristics and outcomes over time. Several trend graphs are presented in this report to reflect the year-to-year changes or stability in important outcomes.

The outcomes collected in the three outcome evaluations map well onto the outcomes considered important in the performance measurement literature: return to substance use, symptoms, functioning, recovery supports, and well-being. Thus, an important question is: how can this information be capitalized on for performance measurement efforts? In other words, how can this information be made more useful to consumers, providers, policymakers, and other interested stakeholders?

Recommendations for Kentucky's efforts in measuring performance indicators for SUD treatment.

Kentucky is in an excellent position to leverage data from existing client-level outcome evaluations that are conducted annually (RCOS, KTOS, and CJKTOS) and performance indicator data collected by community mental health centers that are reported to the Kentucky Department of Behavioral Health, Developmental and Intellectual Disabilities (DBHDID) annually.

Specific recommendations based on the literature of performance indicators for SUD treatment and the findings of the secondary data analysis of three multi-year client-level outcome evaluations are:

- ***Expand*** collection of performance indicators including structure, access, process, and client feedback during treatment and at program exit,
- ***Continue collecting*** client-level outcome data, with possible expansion of outcomes,
- ***Establish*** an evidence base for meaningful and reasonable benchmarks for SUD treatment,
- ***Explore*** the impact of severity of illness, co-occurring physical and mental health conditions, and social determinants of health on client outcomes with more in-depth analysis,
- ***Incentivize*** providers' and organizations' participation in performance indicator efforts,
- ***Incentivize*** quality in programs through reporting performance indicators by program, while carefully considering possible unintended consequences,
- ***Link*** structure and process indicators to outcome data to develop evidence that SUD treatment and outcomes improve when performance indicators are used,
- ***Examine*** barriers to SUD programs systematically and regularly,
- ***Develop*** the infrastructure and processes so that performance indicator data for programs can be widely disseminated to consumers, providers, policymakers, and other interested stakeholders.

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Background

Beginning in the early 2000s, there has been a push for improving quality of care and greater transparency for accountability in health care, in general, and specifically in care for substance use disorders (SUD) (Garnick et al., 2012). Research has shown that there are discrepancies between the care provided and effective treatments for SUDs that have been established in the literature (IOM, 2006). In general, guidelines for clinical practice have been lacking (IOM, 2006). SUD treatment has been under increasing pressure to achieve and document successful client outcomes as well as monitor the performance and quality of programs (Crevecoeur et al., 2012).

The objective of this Performance Indicator Project Report (i.e., Project 1) is to: (1) identify key SUD performance indicators recommended by the research literature; (2) describe Kentucky's current efforts to measure performance indicators for SUD programs; (3) conduct a secondary data analysis of existing client-level outcome data from outcome evaluations from three types of SUD programs; (4) present profiles of performance indicators for each CMHC region, all of Recovery Kentucky programs, and Department of Corrections SAP in prison using existing data; and (5) provide recommendations for Kentucky's use of performance indicators of SUD programs. The Performance Indicators Project (i.e., Project 1) was one of four research projects undertaken by UK CDAR in 2023 to document the barriers to SUD program entry and engagement.

Method

Literature review

Research literature and practice guidelines for performance indicators were searched for within scholarly databases and online google searches. The following search terms were used: performance indicator, performance measure*, system performance, quality measure, quality indicator AND substance use AND treatment. These terms were searched in EBSCOHost, PubMed, JSTOR, and GoogleScholar. Additionally, reference lists of identified articles were searched to identify relevant articles. Within several identified articles, performance indicator efforts at the national or state level were mentioned, and the source documents for these efforts were located online. Abstracts of articles were reviewed to determine if articles were about the conceptual frameworks for performance indicators or empirical data on performance indicators.

Understanding terminology

Performance indicators (also known as performance measures, quality indicators, system performance) (Urbanoski & Inglis, 2019) are "the methods or instruments used to evaluate the extent to which health care practitioners' actions conform to practice guidelines, medical review criteria, or standards of quality" (Garnick et al., 2006, p. 19).

Secondary data analysis of three client-level outcome evaluations

The secondary data analysis conducted for this project uses data from client-level outcome evaluations for three types of SUD programs in Kentucky: (1) Recovery Center Outcome Study (RCOS) for Recovery Kentucky, (2) Kentucky Treatment Outcome Study (KTOS) for publicly-funded SUD treatment in the CMHCs, and (3) Criminal Justice Kentucky Treatment Outcome Study (CJKTOS) for substance abuse programs (SAP) in jails, prisons, and community corrections facilities. Information presented here describes the research method for the outcome evaluations as well as the team's approach to using the existing data to examine performance indicators of programs.

Multiple years of data were merged for each outcome evaluation to be analyzed for this secondary data analysis. The numbers of clients who completed an intake survey in each outcome evaluation analyzed in this report are the following: RCOS (n = 15,716), KTOS (n = 31,621), and CJKTOS (n = 19,433). The numbers of clients who completed a follow-up survey in each outcome evaluation analyzed in this report are the following: RCOS (n = 2,417), KTOS (n = 7,158), and CJKTOS (n = 1,150). Annual reports are published each year for the three outcome evaluations. Details about the method for each study are available in the most recent annual reports.[4] Each outcome evaluation involves the collection of client-reported data in SUD program settings using an evidence-based assessment via an online survey (i.e., intake or baseline survey) and at follow-up by the UK CDAR team via telephone. The length of time between the intake survey and follow-up surveys differs depending on the study:

FIGURE 1. TIMING OF INTAKE AND FOLLOW-UP SURVEYS

[4] Cole, J., Logan, T., White, A., & Scrivner, A. (2023). *Adult Kentucky Treatment Outcome Study 2023 Annual Report.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research. Retrieved from https://cdar.uky.edu/bhos/KTOS_2023_Annual-Report.pdf.

Cole, J., Logan, T., White, A., & Scrivner, A. (2023). *Findings from the Recovery Center Outcome Study 2023 Report*. Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research. Retrieved from https://cdar.uky.edu/RCOS/RCOS_2023_Report.pdf.

Tillson, M., Winston, E.M., & Staton, M. (2022). *Criminal Justice Kentucky Treatment Outcome Study (CJKTOS) FY 2021*. Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research. Retrieved from https://cdar.uky.edu/cjktos/Downloads/CJKTOS_FY2021_Report_FINAL.pdf.

Upon completion of the intake (i.e., baseline) survey, program staff talk to individuals about the follow-up studies and give clients the opportunity to volunteer to participate in the follow-up survey. Contact information is collected from individuals who give consent to be contacted for the follow-up survey Identifying data are encrypted as the data are submitted on the web-based survey. Electronic data are stored in encrypted form on password-protected computers and servers in secure facilities at the University of Kentucky.

Each outcome evaluation has different methods and constraints for selecting individuals to be included in the sample to be followed up. Nonetheless, for each study, individuals must give consent to be contacted for the follow-up survey, in other words, volunteer for participation. According to the contract for RCOS, the maximum number of follow-up surveys to be completed each year is 280. For KTOS, for most of the period included in this multi-year analysis, 2,040 cases were randomly selected into the follow-up sample each year. However, since 2020, the number of intake surveys completed has decreased, rates of agreement to be contacted for the follow-up survey have decreased; therefore, once ineligible individuals are excluded, all eligible individuals have been selected into the sample to be followed up. For CJKTOS, individuals who completed SAP and were released from custody in the fiscal year were randomly selected into the sample to be followed up. In each report, analysis comparing individuals who completed a follow-up survey and individuals who did not complete a follow-up survey (for any reason) is conducted. Of the many variables compared, only a few statistically significant differences are found each year.

TABLE 1. AMONG CASES SELECTED INTO THE SAMPLE TO BE FOLLOWED UP, THE MINIMUM AND MAXIMUM FOLLOW-UP RATES FOR THE REPORT YEARS

	RCOS Rep 2015 - 2023	**KTOS Rep 2017 - 2023**	**CJKTOS March 2016 - Dec 2019**
Minimum and maximum follow-up rates….	55.7% - 66.4%	60.6% - 77.6%	63.3% - 84.1%

The follow-up studies use several strategies to facilitate accurate reporting of sensitive information: (1) the follow-up interviews are conducted by telephone with a UK CDAR staff person who is not associated with the treatment facility/recovery program; (b) individuals are informed that their responses are confidential and are reported at a group level only, meaning their responses are not linked to their identities; (c) the study procedures, including data protections, are consistent with federal regulations and approved by the University of Kentucky Human Subjects Institutional Review Board; (d) confidentiality of research data is protected under federal law through a federal Certificate of Confidentiality; (e) participants can skip any questions they do not want to answer; and (f) UK CDAR staff go through an extensive training to facilitate accurate reporting and adhere to procedures to ensure data integrity and confidentiality of data.

The reference period for questions asked of clients for each outcome evaluation are presented in Table 2. Because participation in Phase 1 of the Recovery Kentucky programs typically lasts about 6 months, at the follow-up 12 months after intake, the typical client

will have been out of the program for 6 months. Thus, the reference period for the RCOS follow-up surveys is the past 6 months. For KTOS, because clients may participate in residential, intensive outpatient, or outpatient, with variable durations, a standard follow-up period for SUD treatment outcome studies (i.e., 12 months) is used in KTOS. For CJKTOS intake surveys, the reference period is the 12 months prior to the client's current incarceration. The reference period for CJKTOS follow-up surveys is the 12 months following release from custody.

TABLE 2. REFERENCE PERIOD FOR QUESTIONS CLIENTS WERE ASKED FOR EACH OUTCOME EVALUATION

	Intake (Baseline)	Follow-up
RCOS.....	In the 6 months before entering the recovery center	In the past 6 months
KTOS	In the 12 months before entering the treatment program	In the past 12 months
CJKTOS.....	In the 12 months prior to the client's current incarceration	In the 12 months following the client's release from custody

To present client-level performance indicators statewide across three Kentucky SUD program outcome datasets as well as by specific program type (see Appendix C) and CMHC region (see Appendix D), data sets for multiple years of outcome evaluation data were merged for each study. The literature on performance indicators informed the selection of variables to examine and identification of variables that were common across all three outcome evaluations, when possible. The multi-year datasets include data from the following report years: RCOS, report years 2015 – 2023,[5] KTOS, report years 2017 – 2023,[6] and CJKTOS, report years 2018 – 2022.[7] Intake surveys completed between these dates: October 2012 through June 2021 for RCOS, July 2014 through June 2021 for KTOS, and March 2016 through December 2019 for CJKTOS. Data in this main part of the report is for clients with intake and follow-up surveys.

Individuals could be in the program more than once. Multiple intake surveys and follow-up surveys for the same person were identified using their Social Security Number (SSN), client's first and last name, and date of birth (DOB). Because of the assumption of independence of cases for the statistical tests conducted in the report, when more than one survey was identified for a person, the earliest survey was included in the dataset and subsequent surveys were excluded from analysis.

A separate analysis was conducted to answer the question of how much crossover between clients in the three outcome evaluations there was. Statistics on the number of multiple intake surveys for the same person across the three studies are presented in

[5] Report years 2015 – 2023 for RCOS correspond to intake surveys completed between October 2012 through June 2021 and follow-up surveys conducted between October 2013 - June 2022.

[6] Report years 2017 – 2023 for KTOS correspond to intake surveys completed between July 2015 – June 2021 and follow-up surveys conducted between July 2016 - June 2022.

[7] Report years 2018 – 2022 for CJKTOS correspond to follow-up surveys conducted between April 2017 – August 2021. Follow-up surveys are conducted among a stratified random sample of participants released one year previously, regardless of treatment intake date. Intake surveys were completed between March 2016 – December 2019.

Appendix B. Because of constraints of how the data are stored, the time period for the intake surveys does not match the intake surveys included in each of the three outcome evaluation datasets. Instead, all intake surveys submitted for each of the outcome evaluations from December 31, 2015 to January 31, 2023 (when the data was downloaded for analysis) are included in the analysis in Appendix B. In this 7 year and 1 month period, there were 87,726 intake surveys for 69,759 unduplicated persons. Four-fifths of unduplicated individuals (80.3%) had one intake survey, 15.0% had two, and the remaining 4.7% had three or more. The majority of individuals participated in one outcome evaluation, with 7.7% participating in two, and 0.4% in all three outcome evaluations.

The secondary data analysis of client-level outcome data is presented for each of the three studies side-by-side for visual comparison and for CMHC regions/ Recovery Kentucky Programs/Type of SAP. Results for Recovery Kentucky programs as a whole, CMHCs, and Department of Corrections prison SAP are presented in the Profiles of Performance Indicators in Appendix C. Profiles for Performance Indicators for specific CMHC regions are presented in Appendix D.[8]

Results for Recovery Kentucky programs as a whole, CMHCs, and Department of Corrections prison SAP are presented in the Profiles of Performance Indicators in Appendix C. Profiles for Performance Indicators for specific CMHC regions are presented in Appendix D.

For substance use disorders, outcomes extend beyond reductions in substance use, including improvements in physical and mental health, improvements in functional status (such as carrying out activities/tasks that are important for independent living and crucial to the fulfillment of relevant roles), reductions in threats to public health and safety, overall quality of life, and recovery outcomes (ASAM, 2014; IOM, 2015; McLellan et al., 2005). Return to use of substances is a key outcome for SUD treatment and will be examined in multiple ways. The three categories of outcomes the IOM committee (2015), which examined psychosocial interventions for mental health disorders and SUD, which will be presented for the three outcome evaluations, are:

1. *target symptoms* (e.g., depression, anxiety, suicidality, overall health),
2. *functioning* (involvement in the criminal justice system, employment, homelessness/ unstable housing, economic hardship) and
3. *well-being* (subjective quality of life, multidimensional recovery, recovery support, self-efficacy for recovery)

Furthermore, the IOM (2015) committee included client perceptions of care as an important dimension of outcomes, specifically, within well-being. However, in our analysis, client perceptions of care are presented in a separate section of the results.

Data analysis. Changes to data collection instruments were made over the course of the

[8] NorthKey did not have an adequate number of participants in KTOS to justify the creation of a Profile of Performance Indicators for this region.

years. Thus, detailed explanations about missing data are included with tables and figures. Univariate statistics (e.g., means and frequency distributions) were used to describe each sample of clients at intake. For the analysis examining change from intake to follow-up for dichotomous variables (e.g., client used illicit drugs [Y/N] in the 12-month period) within each study, McNemar's test was used to test for statistical significance. For the analysis examining change from intake to follow-up for continuous variables (e.g., number of days of poor physical health), paired t-tests were used to test for statistical significance. Multivariate analysis examining two key outcomes (i.e., meeting criteria for a mild, moderate, or severe SUD, and multidimensional recovery), controlling for sociodemographics and covariates were conducted within each study, using binary logistic regression.

The side-by-side presentation of results from the three studies is to provide an overview of the samples, and not for the purpose of statistical analysis between studies. Statistical comparisons across studies were not conducted. Nonetheless, some notable differences and similarities between the studies' samples are noted in bullet points.

Results

For a more thorough discussion of the evolution and current state of research on performance indicators in SUD treatment, Appendix A provides the review of the literature in its entirety. A summary of the major findings applicable to Project 1 is presented in this section of the results.

Summary of the literature review on performance indicators for SUD treatment

Performance indicators are "the methods or instruments used to evaluate the extent to which health care practitioners' actions conform to practice guidelines, medical review criteria, or standards of quality" (Garnick et al., 2006, p. 19). Performance measurement has multiple purposes and uses. First, performance indicators provide critical feedback to providers and health care systems to inform improvements in care and to assess whether progress toward organizational goals is occurring (Conway & Clancy, 2009). Second, performance indicators provide accountability by providing consumers and payers with information on how providers are delivering services to client populations and communities (IOM, 2015; McLellan et al., 2007).

Building the infrastructure for measuring quality in behavioral health in general, and specifically in substance use disorder treatment, and developing the measures has lagged behind performance measurement in other service areas of the health care system (IOM, 2006; Pincus et al., 2016; Reif et al., 2021). Not only does behavioral health care share the quality problems with health care generally, but there are unique contextual differences stemming from greater stigma, the need for greater linkages among multiple organizations and systems, a more educationally diverse workplace, more compelled participation (i.e., coercion) of patients in participating in SUD treatment, and a different health care market place (IOM, 2006; Watkins et al., 2015). Furthermore, the lack of universal screening renders detection and subsequent treatment inconsistent across settings (Watkins et al., 2015), and because the number of individuals with positive screenings is the denominator for a number of performance indicators, bias in measurement and interpretation is more likely.

Donabedian's framework (1980) for performance indicators in medical care has been applied to SUD treatment. When the framework was first developed there were three domains: structure, process, and outcomes; however, it has evolved to typically include five domains: (1) structure, (2) access, (3) process, (4) outcomes, and (5) client perceptions of care (Garnick et al., 2006). The Washington Circle (WC) collaborative effort was the first attempt in the U.S. to develop performance indicators related to SUD treatment and adopted Donabedian's framework. The WC began in 1998 when the Substance Abuse and Mental Health Services Administration (SAMHSA) convened a meeting to develop performance indicators focused on the quantity and timing of treatment services for SUD (Garnick et al., 2009; Garnick et al., 2011). The WC performance indicators, which are focused on process, were designed to measure a set of minimally acceptable services in the early stages of treatment for SUD including: (1) identification (of persons needing treatment), (2) initiation of treatment, and (3) engagement in treatment (Garnick et al.,

2011). Several examples of uses of performance indicators in states and by national organizations from the literature are presented in Appendix A.

The Institute of Medicine (IOM) committee (2015) stated that recovery (from a mental or substance use disorder) is a more meaningful objective and domain than solely abstaining/reducing substance use or a reduction in target symptoms. Recovery is "a process of change through which individuals improve their health and wellness, live self-directed lives, and strive to reach their full potential" (SAMHSA, 2015, p. 3). For substance use disorders, outcomes extend beyond reductions in substance use, including improvements in physical and mental health, improvements in functional status (such as carrying out activities/tasks that are important for independent living and crucial to the fulfillment of relevant roles), reductions in threats to public health and safety, overall quality of life, and recovery outcomes (ASAM, 2014; IOM, 2015; McLellan et al., 2005). The IOM committee conceptualized outcomes as fitting into three categories: ***target symptoms*** (e.g., depression, anxiety), ***functional status*** (performance on daily living tasks, participation in work/school, maintaining relationships, and community involvement) and ***well-being*** (life satisfaction, quality of life, recovery, self-determination, and client perceptions of care). In this report, client perceptions of care is discussed as a separate client outcome. Client perceptions of care assesses specific aspects of care clients received, including access to care, shared decision making, communication, respect, willingness to recommend to others and overall satisfaction with services (IOM, 2015). Therefore, measurement of treatment outcomes would benefit from measuring these wide-ranging aspects of clients' lives before and after treatment. However, current performance measurement efforts largely omit these client-level outcomes of multiple dimensions of clients' functioning and well-being because of the infeasibility of collecting these data (ASAM, 2014).

Table 3 presents definitions, examples from the literature and possible data sources for the domains of performance indicators.

TABLE 3. DEFINITIONS AND EXAMPLES OF DOMAINS OF PERFORMANCE INDICATORS FOR SUD TREATMENT FROM THE RESEARCH LITERATURE

	Definition	Examples from the literature	Possible Data Sources
Structure.....	Features of an organization that determine its capacity to provide care. They reflect the conditions in which providers care for clients (ASAM, 2014) Measures of management practices that are associated with better treatment processes is an example of a structure measure (Garnick et al., 2012).	1. The number of certified/ licensed providers.....	1. Provider survey
		2. Ratio of treatment providers to clients	2. Provider survey
		3. Program uses electronic medical records (EMR).....	3. Provider survey
		4. Collecting and reporting clients' perceptions of care using standardized instruments	4. Provider survey
		5. Number of providers that can prescribe and monitor medications	5. Provider survey
Access	The extent to which a person who needs services is able to receive services (Garnick et al., 2019).	1. (Initiation) Proportion of individuals with an SUD who receive treatment	1. Claims data
		2. Penetration rate.....	2. Claims data and population-based data (e.g., NSDUH rates)
		3. Wait time for treatment.....	3. Secret Shopper Project
Process	"assess how well a health care service provided to a patient, or on a patient's behalf, adheres to recommendations for clinical practice" (Garnick et al., 2006, p. 20)	1. (Engagement) Percent of admissions with at least 90 days of treatment retention ...	1. Administrative/claims data (e.g., TEDS)
		2. (Engagement) Percent of admissions with 3-6 visits in first month	2. Administrative/ claims data (e.g., TEDS)
		3. (Engagement) Percent of admissions with 4 or more services within 30 days of first service	3. Administrative/claims data (e.g., TEDS)
		4. Percent of clients who left treatment against medical advice (i.e., dropout).....	4. Administrative/claims data (e.g., TEDS)
		5. Program provides evidence-based therapies.....	5. Provider survey
		6. Program provides various types of recovery support services.....	6. Provider survey
		7. MOUD medication to patients	7. Administrative/claims data (e.g., TEDS)

TABLE 3. DEFINITIONS AND EXAMPLES OF DOMAINS OF PERFORMANCE INDICATORS FOR SUD TREATMENT FROM THE RESEARCH LITERATURE (CONT.)

	Definition	Examples from the literature	Possible Data Sources
Outcome	"used to evaluate the state of a patient's health resulting from the health care services and interventions received." (Garnick et al., 2006, p. 20) "the changes in patients' symptoms, behavior, and function that can reasonably be attributed to the treatment" (McLellan et al., 2007, p. 332)	Most commonly included in frameworks and are client-level reports of:	
		1. Resource utilization (resources outside the treatment setting)	1. Claims data
		2. Substance use (return to use)	2. Client-reported or clinician-administered scales
		3. Target symptoms (mental health, SUD)	3. Client-reported or clinician-administered scales
		4. Functional status: "performance of activities and tasks associated with current life roles" (IOM, 2015, p. 115)..	4. Client-reported or clinician-administered scales
		Less commonly included:	
		5. Social relationships (such as the social scale of the Outcome Rating Scale)	5. Client reported scale or survey
		6. Quality of life ratings	6. Client reported scale or survey
		7. Recovery supports (Urbanoski & Inglis, 2019)	7. Client reported scale or survey
Client Experience	Aggregated from clients' reports about their observations of and perceptions of SUD treatment Quality measures based on client-reported outcomes "typically define a specific population at risk, a time period for observation, and an expected change or improvement in outcome score" (IOM, 2015, p. 117)	1. Client satisfaction	1. Client survey
		2. Client perceptions of care (access to care, shared decision making, communication, respect, therapeutic alliance, recommendation to others, overall rating of quality [IOM, 2015])	2. Client survey

How does Kentucky measure performance in SUD treatment?

The Kentucky Behavioral Health Planning and Advisory Council reviews the state plan for substance misuse prevention, SUD treatment and recovery services every year. The council is composed of a mix of providers, consumers, family members of consumers (KY DBHDID, 2022). Kentucky's Department for Behavioral Health, Developmental and

Intellectual Disabilities (DBHDID) issues a performance indicator implementation guide each fiscal year for the contracting processes with Community Mental Health Centers (CMHCs). CMHCs can monitor their progress toward targets by reviewing monthly reports for each performance indicator (KY DBHDID, 2022). The performance indicators are categorized into six principal domains: (1) access, (2) evidence-based services, (3) quality of information, (4) engagement and retention, (5) community integration, and (6) continuity of care (KY DBHDID, 2023). The three indicators used by KY DBHDID for substance use disorder treatment are presented in Table 4 along with client-level outcomes and client perceptions of care collected in the annual client-level outcome evaluation studies: Recovery Center Outcome Study (RCOS), Kentucky Treatment Outcome Study (KTOS), and Criminal Justice Kentucky Treatment Outcome Study (CJKTOS). In 2022, the Secretary of the Justice and Public Safety Cabinet was charged with contracting for external performance reviews of SUD treatment and recovery programs. Additional research efforts were undertaken by the UK CDAR research teams from January 2023 – June 2023 (i.e., 2023 project) to add to the information on performance indicators for SUD treatment in the state's Community Mental Health Centers (CMHC), the Department of Corrections' Substance Abuse Programs (SAP), and Recovery Kentucky's peer-supported housing programs throughout the state.

TABLE 4. KENTUCKY DEPARTMENT FOR BEHAVIORAL HEALTH, DEVELOPMENTAL AND INTELLECTUAL DISABILITIES (DBHDID) KEY PERFORMANCE INDICATORS RELATED TO SUBSTANCE USE DISORDER TREATMENT

Domain	Performance Indicator	Target or Measures	Part of Annual or 2023 Projects
Identification and Access	The count of clients ages 12+ receiving outpatient SA treatment services / the percentage of persons ages 12+ in the region estimated to need treatment as determined by the NSDUH multiplied by the region's 2010 census population of ages 12+	1. Benchmark percent in SFY 2024: 7%	Annual
	Wait time to first appointment	Not defined	Secret Shopper project in 2023
Treatment Engagement	1. The count of mental health and substance use outpatient services provided between admission and discharge / the count of TEDS episodes that lasted 30 days or longer where the discharge date is during the monitoring period.	1. At minimum, an average of 7 services during the first 30 days of post admission for engagement 2. A minimum of an average of 3 outpatient services will be provided during the first 30 days of a TEDS episode	Annual

TABLE 4. KENTUCKY DEPARTMENT FOR BEHAVIORAL HEALTH, DEVELOPMENTAL AND INTELLECTUAL DISABILITIES (DBHDID) KEY PERFORMANCE INDICATORS RELATED TO SUBSTANCE USE DISORDER TREATMENT (CONT.)

Domain	Performance Indicator	Target or Measures	Part of Annual or 2023 Projects
Treatment Retention....	1. The count of outpatient TEDS episodes which lasted 30 days or longer / the count of outpatient TEDS episodes where the discharge date is during the monitoring period.	1. At minimum, an average of 50% of all outpatient substance use treatment episodes will last more than 30 days	Annual
Outcomes	Client-level treatment outcomes from interviews with clients in Kentucky Treatment Outcome Study (KTOS), Recovery Center Outcome Study (RCOS), and Criminal Justice Kentucky Treatment Outcome Study (CJKTOS), which are conducted annually, allowing for examination of trends over time	Outcomes: 1. Substance use (return to use), Target symptoms: 2. Severity of SUD, 3. Mental health and physical health, Functional status: 4. Criminal justice system involvement, 5. Education and employment, 6. Living situation Well-being: 7. Quality of life 8. Recovery supports	Annual and 2023 Project (multi-year analysis)
Client Perceptions of Care.....	Client feedback on treatment engagement and satisfaction from KTOS/RCOS interviews	Client perceptions of care: 1. Overall rating of quality of program 2. Access to care, 3. Shared decision making, 4. Communication, 5. Respect, 6. Therapeutic alliance, 7. Recommendation to others, 8. Perceived effectiveness of program	Annual and 2023 Project (multi-year analysis)

Sources: Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities. (2023). DBHDID performance indicator implementation guide: Applicable to state fiscal year 2024 contracts. Frankfort, KY: Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities. Accessed from https://dbhdid.ky.gov/cmhc/documents/pi/current/Guide.pdf?t=10435208152021.

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Highlights from the Literature Review on Performance Indicators

- Performance indicators (PI) are "the methods or instruments used to evaluate the extent to which health care practitioners' actions conform to practice guidelines, medical review criteria, or standards of quality" (Garnick et al., 2006, p. 19).

- Performance measurement has multiple purposes and uses.
    - First, performance indicators provide critical feedback to providers and health care systems to inform improvements in care and to assess whether progress toward organizational goals is occurring.

    - Performance indicators provide accountability by providing consumers and payers with information on how providers are delivering services to client populations and communities.

- Building the infrastructure for measuring quality in behavioral health in general, and specifically in substance use disorder treatment, and developing the measures has lagged behind performance measurement in other service areas of the health care system.

- Donabedian's framework for performance indicators in medical care include:
    - Structure,
    - Access,
    - Process,
    - Outcomes, and
    - Client perceptions of care was added as a domain.

- The Washington Circle (WC) collaborative effort was the first attempt in the U.S. to develop performance indicators related to SUD treatment. The WC began in 1998 when the Substance Abuse and Mental Health Services Administration (SAMHSA) convened a meeting to develop performance indicators focused on the quantity and timing of treatment services for SUD.

    - The WC performance indicators, which are focused on process, were designed to measure a set of minimally acceptable services in the early stages of treatment for SUD.
        * Identification,
        * Initiation, and
        * Engagement

    - Adaptations to publicly-funded agencies and to the ways in which PI were to be used in each state.

- The field of performance indicators in SUD treatment has made substantive progress in the past two decades; nonetheless, important gaps in the research and priorities for improvement are evident.
    - Validity of performance indicators,

- Underdevelopment and underuse of some domains or aspects of some domains,
- Increasing the interpretability of performance indicators,
- Investigating implementation of performance indicators,
- Improving participation in performance measurement efforts,
- Sustainability of performance measurement efforts, and
- The need for continual evaluation and adaptation of performance measurement efforts.

- Recommendations for Kentucky's efforts in measuring PI for SUD treatment:
  - ***Expand*** collection of performance indicators including structure, access, process, and client feedback during treatment and at program exit,
  - ***Continue collecting*** client-level outcome data, with possible expansion of outcomes,
  - ***Establish*** an evidence base for meaningful and reasonable benchmarks for SUD treatment,
  - ***Explore*** the impact of severity of illness, co-occurring physical and mental health conditions, and social determinants of health on client outcomes with more in-depth analysis,
  - ***Incentivize*** providers' and organizations' participation in performance indicator efforts,
  - ***Incentivize*** quality in programs through reporting performance indicators by program, while carefully considering possible unintended consequences,
  - ***Link*** structure and process indicators to outcome data to develop evidence that SUD treatment and outcomes improve when performance indicators are used,
  - ***Examine*** barriers to SUD programs systematically and regularly,
  - ***Develop*** the infrastructure and processes so that performance indicator data for programs can be widely disseminated to consumers, providers, policymakers, and other interested stakeholders.

Results from the secondary data analysis of three client-level outcome evaluations in Kentucky

Key findings from the three multi-year outcome evaluations for Recovery Kentucky (RCOS), SUD treatment in CMHCs (KTOS), and the Department of Corrections SAP (CJKTOS) are presented in the following four major sections: (1) Description of clients at intake, (2) Change in targeted factors (i.e., outcomes) from intake to follow-up and trend graphs for outcomes at intake and follow-up by year, (3) Client perceptions of care reported at follow-up, and (4) Case-adjusted outcomes at follow-up. Within each of these major sections, the results are presented in subsections.

Description of Clients at Intake

To appropriately contextualize the program outcome results, it is necessary to consider the characteristics of clients as they enter SUD programs. In this first section of results, sociodemographics, substance use, mental and physical health, involvement with the criminal justice system, education, employment, living situation, and recovery supports as clients enter SUD programs are presented for RCOS (n = 15,716), KTOS (n = 31,621), and CJKTOS (n = 19,433). Important differences in sociodemographics, severity of SUD and mental health systems, life situations, risk factors and recovery supports exist between clients entering different types of SUD treatment.

Sociodemographics

- A little over a half of RCOS and KTOS clients were male whereas four-fifths of CJKTOS clients were male.
- The average age of all three samples at intake was in the mid-30s, with the majority of clients being 30 – 49 years old.
- The majority of all three samples were individuals who self-report being White, although the percent of individuals who are Black/African American is higher in the CJKTOS sample.
- About half of RCOS and CJKTOS clients resided in metropolitan communities, and about half of KTOS clients lived in non-metropolitan communities.

TABLE 5. DEMOGRAPHICS OF CLIENTS WHO COMPLETED INTAKE SURVEYS

	RCOS Rep 2015-2023 (n = 15,716)	KTOS Rep 2017-2023 (n = 31,621)	CJKTOS March 2016 – Dec 2019 (n = 19,433)
Gender			
Male	55.7%	58.1%	81.8%
Female	44.2%	41.8%	18.1%
Transgender	0.1%	0.1%	0.1%
Mean age	34.1[9] (Min. = 18, Max. = 76)	35.5 (Min. = 18, Max. = 80)	35.1[10] (Min. =18, Max. = 72)
Age categories			
18 – 29 years old	35.5%	33.5%	31.2%
30 – 39 years old	39.1%	35.0%	40.1%
40 – 49 years old	18.1%	19.9%	19.9%
50 – 59 years old	6.3%	9.5%	7.1%
60 years old and older	0.9%	2.2%	1.2%
Race/ethnicity	(n = 15,709)[11]	(n = 31,607)[12]	(n=19,398)[13]
White/Caucasian	90.6%	92.1%	82.6%
Black/African American	6.6%	5.2%	13.6%
Hispanic	0.7%	0.8%	0.9%
Asian, Pacific Islander, American Indian	0.2%	0.8%	0.6%
Multiracial	1.9%	1.1%	2.1%
Marital status (including cohabitation)			
Never married *(and not cohabiting)*	45.7%	28.4%	34.7%
Married or cohabiting	21.5%	43.2%	39.3%
Separated or divorced (not cohabiting)	29.0%	26.4%	24.4%
Widowed	3.7%	2.1%	1.6%
Children			
Mean number of children	1.7	1.8	1.9

[9] Missing values for age for 106 RCOS clients.

[10] Missing values for age for 97 CJKTOS clients.

[11] Missing values for race/ethnicity for 7 RCOS clients.

[12] Missing values for race/ethnicity for 14 KTOS clients.

[13] Missing values for race/ethnicity for 35 CJKTOS clients.

TABLE 5. DEMOGRAPHICS OF CLIENTS WHO COMPLETED INTAKE SURVEYS (CONT.)

	RCOS Rep 2015-2023 (n = 15,716)	KTOS Rep 2017-2023 (n = 31,621)	CJKTOS March 2016 – Dec 2019 (n = 19,433)
Mean number of children under age 18 living with the client	0.6	0.7	0.7
Veteran (Yes)	3.1%	3.5%	3.5%
Type of community resided in:[14]	(n = 13,551)[15]	(n = 30,867)[16]	
Metropolitan	52.9%	27.4%	51.9%
Non-metropolitan	38.0%	52.8%	39.0%
Very rural	9.2%	19.8%	9.1%

Substance Use and Severity of SUD at Intake

- Tobacco use was prevalent in all three studies.
- About 1 in 5 CJKTOS clients and 1 in 3 RCOS clients reported use of vaporized nicotine products (i.e., e-cigarettes, vape).
- Around one-half of clients reported alcohol use in the (12- or 6-month) period before entering treatment in all three studies. Nearly half of RCOS clients, a little over two-fifths of CJKTOS clients, and a little more than one-third of KTOS clients reported problem alcohol use at intake. Problem alcohol use is defined as using alcohol to intoxication and/or binge drinking (binge drinking is defined as 5 or more [if male] and 4 or more drinks [if female] in about 2 hours).
- The majority of clients in RCOS and CJKTOS reported using more than one drug class (i.e., polydrug use) in the period before entering treatment.
- The majority of RCOS and CJKTOS clients met criteria for severe substance use disorder based on DSM-5 criteria, whereas one-half of KTOS clients met criteria for severe substance use disorder.

[14] For CJKTOS, county of arrest prior to current incarceration.

[15] Missing values for 2,165 RCOS clients: 1,155 cases lived out of Kentucky.

[16] Missing values for county of residence for 754 KTOS clients.

TABLE 6. SUBSTANCE USE AT TREATMENT INTAKE

	RCOS Rep 2015-2023	KTOS Rep 2017-2023	CJKTOS March 2016 – Dec 2019
In the 12 (or 6) months before entering the program, or prior to incarceration…[17]	(n = 12,859)	(n = 31,180)	(n = 19,433)
Tobacco products *(not vaporized nicotine)*	87.9%	86.3%	86.5%
Vaporized nicotine	33.6%[18]	26.2%[19]	19.2%
Alcohol	51.8%	48.1%	51.1%
Problem alcohol *(i.e., alcohol use to intoxication, and/or binge drinking)*	48.5%	35.7%	42.7%
Illicit drugs-any	86.8%	75.1%	91.6%
Opioids (including heroin)[20]	66.1%	42.4%	56.5%
Methamphetamine	46.2%	35.3%	53.2%
Classification based on types of substances used in the 12 (or 6) months before entering program/treatment or incarceration	(n = 12,859)	(n = 31,180)	(n = 19,433)
No alcohol or illicit drug use	7.8%	12.1%	4.3%
Alcohol only	5.4%	12.8%	4.2%
Only illicit drug class used-Cannabis	3.3%	12.1%	7.8%
Only illicit drug class used-Opioids *(including heroin)*	7.8%	7.8%	6.6%
Only illicit drug class used-Stimulants *(including cocaine)*	7.0%	7.8%	10.2%
Only illicit drug class used-drug class other than cannabis, opioids, or stimulants	0.8%	1.2%	0.7%
More than one drug class	67.8%	46.2%	66.3%
DSM-5 criteria for SUD	(n = 8,980)[21]	(n = 30,947)[22]	(n = 19,380)[23]
None *(0 – criteria endorsed)*	11.8%	33.5%	11.6%
Mild	3.1%	9.0%	5.2%
Moderate	3.5%	7.8%	6.2%
Severe	81.6%	49.8%	76.7%

[17] The reference period for the RCOS intake was the 6 months before entering the recovery center, whereas the reference period for the KTOS intake was for the 12 months before entering treatment. For CJKTOS intake surveys, the reference period is the 12 months prior to the client's current incarceration.

[18] Questions about vaporized nicotine products were added in June 2015; thus, 3,885 RCOS cases had missing values.

[19] Questions about vaporized nicotine products were added in June 2015; thus, 4,612 KTOS cases had missing values.

[20] Illicit use of prescription opioids, buprenorphine, methadone and use of heroin were classified as opioid use.

[21] Questions about DSM 5 criteria for SUD were added in FY 2016; thus, 3,879 had missing values.

[22] 233 KTOS cases had missing values on at least one of the variables used to compute DSM-5 severity of SUD.

[23] 53 CJKTOS cases had missing values on at least one of the variables used to compute DSM-5 severity of SUD.

- Around two-thirds of RCOS and CJKTOS clients and more than one-half of KTOS clients reported a prior episode of treatment in their lifetime.
- The majority of RCOS clients had ever injected drugs in their lifetime, whereas only about one-third of KTOS clients reported a history of injection drug use.
- Sizable minorities of clients reported ever having overdosed in their lifetime.

TABLE 7. LIFETIME AND 12 (OR 6) MONTH SUBSTANCE USE RISKS AT INTAKE

	RCOS Rep 2015-2023	KTOS Rep 2017-2023	CJKTOS March 2016 – Dec 2019
Lifetime (ever)	(n = 15,716)	(n = 31,621)	(n = 19,433)
Ever attended substance abuse treatment before current episode	65.7%	54.3%	67.7%
Ever injected drugs (Yes).....	57.8%	32.9%	48.3%
	(n = 4,035)	(n = 8,226)	(n = 1,476)
Ever overdosed in lifetime[24, 25, 26]	36.4%	20.9%	29.6%
In the 12 (or 6) months before entering the program	(n = 15,716)	(n = 31,621)	(n = 19,433)
Overdosed (Yes).....	15.3%	8.0%	---

Symptoms at Intake

Following the IOM (2015) classification of outcomes, symptoms of physical and mental health problems were examined at intake, as well as at follow-up, to allow for examination of change in symptoms from intake to follow-up. To characterize the risks of the samples of clients of the three outcome evaluations, physical and mental health symptoms at intake are presented in this section.

Physical and Mental Health at Intake

- Clients in all three studies entered treatment with mental health and physical health symptoms.
- Higher percentages of RCOS clients self-reported symptoms of major depression, generalized anxiety, and suicidality, and chronic medical problems, as well as higher mean

For comparison to the general population, in Kentucky in 2021, 7.0% of the general population reported their overall health was poor (CDC, 2023).

[24] Lifetime overdose question was added in February 2019; thus, 4,035 RCOS cases had a non-missing value.

[25] Lifetime overdose question was added in January 2019; thus, 8,226 KTOS cases had a non-missing value.

[26] Overdose data only collected for CJKTOS baselines entered 09/20/2019 and later; thus, n=17,959 had missing values.

number of days their physical health and mental health were poor.

- The percent of CJKTOS clients who reported their overall health was very good or excellent at intake was nearly double the percent of RCOS clients.
- Percentages of individuals experiencing chronic pain ranged from 25.5% in RCOS to 33.1% in KTOS.

TABLE 8. MENTAL HEALTH AND PHYSICAL HEALTH AT INTAKE

	RCOS Rep 2015-2023 (n = 15,716)	KTOS Rep 2017-2023 (n = 31,621)	CJKTOS March 2016 – Dec 2019 (n = 19,433)
Mental health			
Major depression (Yes)	65.6%	45.2%	43.0%
Generalized anxiety (Yes)	72.9%	44.4%	48.6%
Suicidality[27] (Yes)	29.6%	15.8%	11.9%
Physical health			
Overall general health			
Excellent/very good	12.6%	21.2%	23.5%
Good/fair	68.7%	67.3%	65.9%
Poor	18.7%	11.4%	10.6%
Mean number of days in the past 30 physical health was poor	8.6	6.2	6.3
Mean number of days in the past 30 mental health was poor	16.2	11.3	9.7
Mean number of days poor physical or mental health kept client from doing usual activities in the past 30 days	11.6	6.8	7.0
Chronic pain (Yes)	25.5%	33.1%	27.8%
Chronic medical problems (Yes)	59.3%	52.0%	47.6%

Functioning of Clients

Following the IOM (2015) classification of outcomes for psychosocial interventions, client functioning was examined at intake and at follow-up, to allow for examination of change in functioning from intake to follow-up. In this section client functioning for the samples of

[27] Reports of thoughts of suicide and/or suicide attempts were classified as suicidality.

the three outcome evaluations at intake are presented: (1) involvement with the criminal justice system, (2) education, (3) employment, (4) living situation, (5) and economic hardship.

Involvement with the Criminal Justice System at Intake

- Given the nature of the study, all CJKTOS clients had been arrested in the 12-month period before entering the program, whereas about 55% of RCOS and KTOS clients had been arrested in the period before entering the program.
- Nonetheless, RCOS clients reported being incarcerated 65.1 nights (out of 6 months), on average, compared to 42.4 nights (out of 12 months) for CJKTOS clients, and 46.4 nights (out of 12 months) for KTOS clients.

TABLE 9. INVOLVEMENT WITH THE CRIMINAL JUSTICE SYSTEM AT INTAKE

	RCOS Rep 2015-2023 (n = 15,716)	**KTOS Rep 2017-2023 (n = 31,621)**	**CJKTOS March 2016 – Dec 2019 (n = 19,433)**
In the 12 (or 6) months before entering the program[28]			
Arrested (Yes).....	55.3%	55.6%	100%
Mean number of nights incarcerated ...	65.1	46.4	42.4

Education, Employment, Living Situation, and Economic Hardship at Intake

- About 1 in 5 RCOS clients and a little more than 1 in 4 KTOS and CJKTOS clients had less than a high school graduation or GED at intake.
- Less than half of RCOS clients and the majority of KTOS and CJKTOS clients reported their usual employment before treatment was full- or part-time employment.
- More than one-third of RCOS clients, more than one-fourth of CJKTOS clients, and more than one-fifth of KTOS clients reported homelessness in the 12 (or 6) month period before entering the program.
- Sizable minorities of clients reported economic hardship, with between 34.4% and 44.0% of clients having difficulty meeting basic living needs, and between 23.5% and 31.2% of clients having difficulty meeting basic health care needs because of finances.

[28] For clients in RCOS, they are reporting the number of nights incarcerated out of the 6 months before entering the program. For clients in KTOS, they are reporting the number of nights incarcerated out of the 12 months before entering treatment. For clients in CJKTOS, they are reporting the number of nights incarcerated out of the 12 months before their current incarceration.

TABLE 10. EDUCATION, EMPLOYMENT, LIVING SITUATION, AND ECONOMIC HARDSHIP AT INTAKE

	RCOS Rep 2015-2023 (n = 15,716)	KTOS Rep 2017-2023 (n = 31,621)	CJKTOS March 2016 – Dec 2019 (n = 19,433)
Highest level of education completed			
Less than a high school diploma or GED	19.9%	26.0%	27.7%
High school diploma or GED	42.9%	43.0%	49.2%
Some vocational school to completed graduate school	37.2%	30.9%	23.1%
In the 12 (or 6) months before entering the program[29]			
Usual employment situation			
Full-time employment	33.9%	38.8%	49.8%
Part-time or seasonal employment	12.0%	15.9%	13.0%
Unemployed *(student, home caregiver, retired)*	3.6%	7.6%	2.9%
Unemployed *(on disability, applied for disability)*	4.7%	14.4%	8.0%
Unemployed, in a controlled environment	20.9%	5.7%	---
Unemployed *(looking or not looking for employment)*	24.8%	17.6%	26.1%
Homelessness (Yes)	35.3%	22.5%	27.9%
Economic hardship			
Had difficulty meeting basic living needs (Yes)	44.0%	38.7%	34.4%
Had difficulty meeting health care needs (Yes)	31.2%	23.5%	25.1%

Recovery Supports at Intake

- RCOS clients had the highest percentage for attending mutual help recovery meetings in the 30 days before entering the program, followed by KTOS clients (28.0%), and 19.8% for CJKTOS clients.
- The majority of clients in all three types of programs had recent interactions with people supportive of their recovery.

[29] N=35 missing for CJKTOS 12-month employment questions.

- The majority of clients entering all three types of programs thought their chances of abstaining from substance use were moderately good to very good.

TABLE 11. RECOVERY SUPPORTS AT INTAKE

	RCOS Rep 2015-2023 (n = 15,716)	KTOS Rep 2017-2023 (n = 31,621)	CJKTOS March 2016 – Dec 2019 (n = 19,433)
Attended mutual-help recovery meetings in the past 30 days (Yes)	34.0%	28.0%	19.8%
Had interactions with people supportive of client's recovery (Yes).....	76.9%	85.0%	69.6%
Chances of staying off alcohol/drugs were moderately good to very good	86.9%	85.1%	79.5%

Well-being of Clients

Subjective Quality of Life at Intake

Clients in RCOS had very low average rating for subjective quality of life at intake. Quality of life was not included in the CJKTOS survey.

TABLE 12. SUBJECTIVE QUALITY OF LIFE AT INTAKE

	RCOS Rep 2015-2023 (n = 15,716)	KTOS Rep 2017-2023 (n = 31,621)	CJKTOS March 2016 – Dec 2019 (n = 19,433)
Mean rating for subjective quality of life *[1 = worst, 10 = best]*	3.4	6.5	---

Summary of Description of SUD Program Clients at Intake

Polydrug use and severe substance use disorder (SUD) were the norm for Recovery Kentucky and SAP clients, whereas a little less than half of clients in SUD treatment in CMHCs reported polydrug use and half of clients in CMHC had symptoms of severe SUD. Other aspects of substance use showed greater risk (e.g., overdose, IDU, prior episodes of SUD treatment) for more clients in Recovery Kentucky and SAP compared to clients in CMHCs. The majority of clients were involved with the criminal justice system, were White and between the ages of 30 and 49 years old, had mental health symptoms, had support for recovery from at least one person, and believed their chances of abstaining from substance use were moderately or very good. Economic hardship and homelessness were experienced by more than one-fourth but less than one-half of each study sample.

Clients Involvement with criminal justice system is mandatory for clients in SAP because of the nature of the program and typical even clients in Recovery Kentucky and SUD treatment in the CMHCs. At intake (before entering the program or before being incarcerated for CJKTOS), clients reported spending more than a month out of the prior 12 months (for KTOS and CJKTOS) and more than two months out of the prior 6 months (for RCOS) incarcerated. The majority of clients are between the ages of 30 and 49 years old. Racial diversity was low, with between 82.6% and 92.1% of clients in the studies self-reporting being White, which is compared to 82.4% of Kentucky residents being White (alone) in 2020. The racial composition of SAP clients is more diverse than in Recovery Kentucky and SUD treatment in CMHCs. Men are more than half of the clients. Four-fifths of SAP clients are male versus more than half of clients in Recovery Kentucky and SUD treatment in CMHCs. Most clients had children. Mental health problems are reported by the majority of Recovery Kentucky clients and by sizable minorities of clients in CMHCs and SAP. Chronic pain is an issue for between one-fourth to one-third of clients. Highest level of education is lower for clients in the three outcome evaluations than in the general population of Kentucky; 87.7% of Kentucky residents (ages 25 and older) reported being a high school graduate in 2020 (U.S. Census, 2023). Economic hardship and homelessness were experienced by more than one-fourth but less than one-half of each study sample. Clients in SAP had the highest employment rate, perhaps largely due to higher percentage of male vs. female clients. The majority of clients reported they had recent contact with someone who was supportive of their recovery and the majority of clients believed their chances of staying off substances were moderately good or very good. A minority of clients had attended mutual help recovery group meetings before entering the program (or being incarcerated for CJKTOS).

Change in Targeted Factors from Intake to Follow-Up

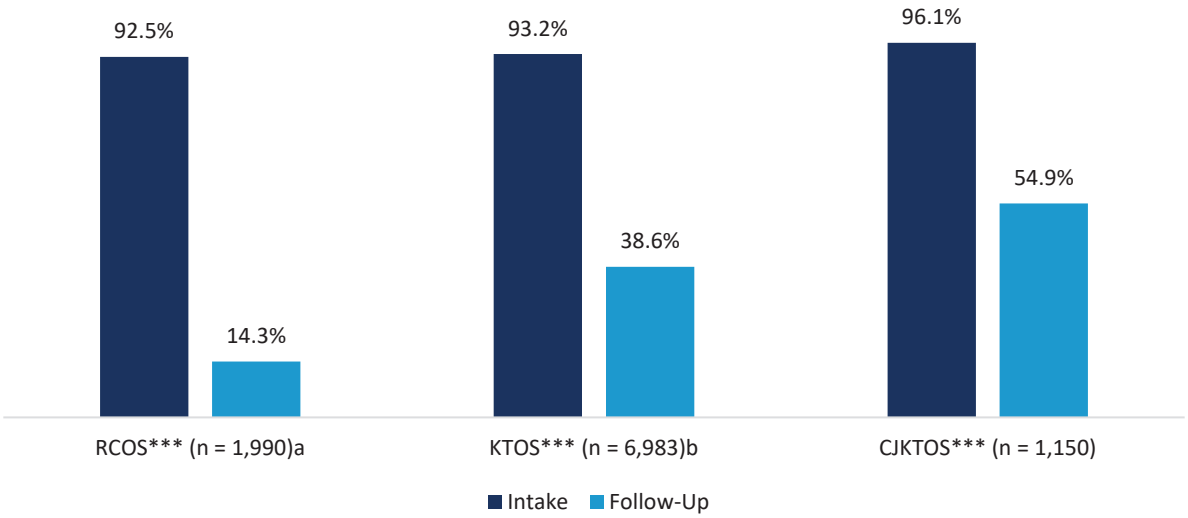
Program outcomes are presented in this section as change from intake to follow-up: (1) change in substance use (e.g., illicit drug and/or problem alcohol, as well as opioid use and methamphetamine use) and severity of SUD, (2) change in symptoms (e.g., depression and/or generalized anxiety, suicidality, poor physical and/or mental health limited their daily activities, and overall health), (3) change in functioning (e.g., involvement with the criminal justice system, employment, homelessness or unstable housing, (4) recovery supports (e.g., attending mutual help recovery meetings, contact with people supportive of recovery, and perceived chances of abstaining from substances) and (5) well-being (e.g., subjective quality of life). Statistical tests of significance were conducted to examine change from intake to follow-up within each study. No statistical comparisons are made between studies. The number of followed-up clients in each outcome evaluation dataset analyzed in this section are: RCOS (n = 2,417), KTOS (n = 7,158), and CJKTOS (n = 1,150).

Statistical tests of significance were conducted to examine change from intake to follow-up within each study. No statistical comparisons are made between studies.

Change in Substance Use from Intake to Follow-Up

- As expected, the vast majority of individuals in all three studies reported problem alcohol use and/or illicit drug use at intake.
- Decreases in percentages of individuals reporting any problem alcohol use and/or illicit drug use at follow-up were statistically significant in all three studies.
- Only 14.3% of RCOS clients reported problem use of alcohol and/or illicit drug use at follow-up.
- A little more than half of CJKTOS clients reported problem use of alcohol and/or illicit drug use at follow-up.

FIGURE 2. AMONG INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD (12-MONTH OR 6-MONTH),[30] CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING PROBLEM ALCOHOL USE AND/OR ILLICIT DRUG USE



a—The following number of cases were excluded for the following reasons: they were incarcerated the entire 6 months before entering the recovery center program (n = 413); they were incarcerated the entire 6 months before follow-up (n = 10); and they had a missing value for the number of days incarcerated before follow-up (n = 4).

b—The following number of cases were excluded for the following reasons: they were incarcerated the entire 12 months before entering treatment (n = 96); they were incarcerated the entire 12 months before the follow-up survey (n = 2); they had missing data on the number of days incarcerated during the follow-up period (n = 40); and they had missing data for problem alcohol and/or illicit drug use in the 12 months before follow-up (n = 37).

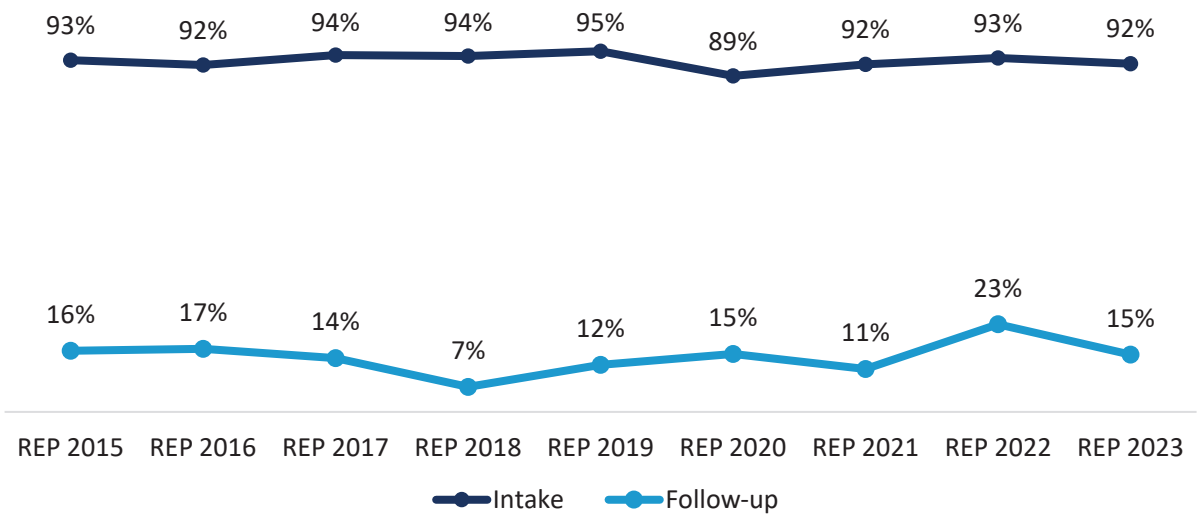
***p < .001.

[30] The reference period in the RCOS intake survey was the 6 months before entering the recovery center and in follow-up survey the reference period was the past 6 months. The reference period in the KTOS intake survey was the 12 months before entering treatment and in the follow-up survey the reference period was the past 12 months. For CJKTOS intake surveys, the reference period is the 12 months prior to the client's current incarceration. The reference period for CJKTOS follow-up surveys is the 12 months following release from custody.

Trends: Illicit Drug Use And/or Problem Alcohol Use at Intake and Follow-up

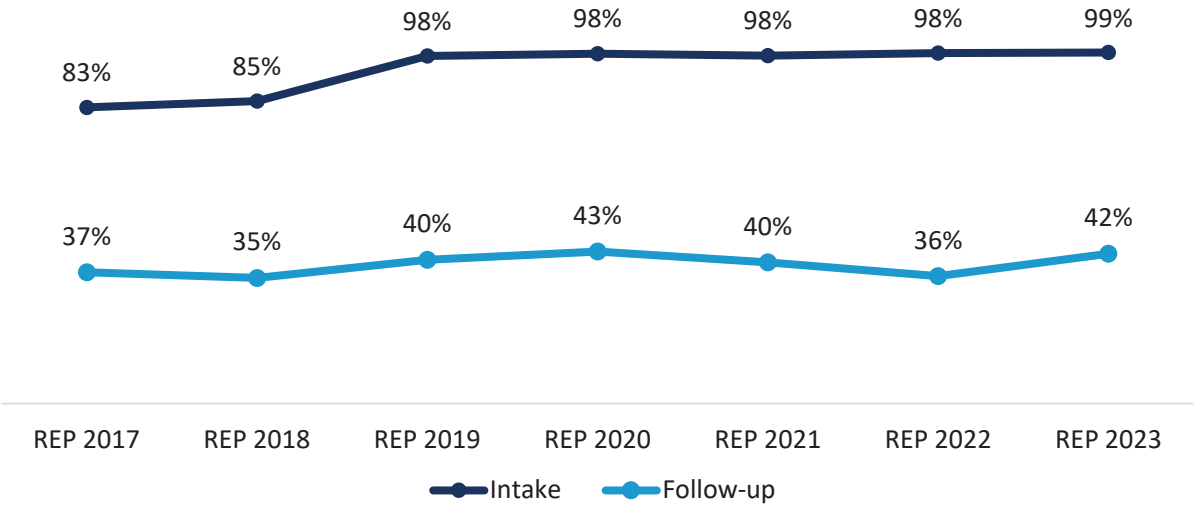
Recovery Kentucky Clients in RCOS

FIGURE 3a. PERCENT OF RCOS CLIENTS WHO REPORTED ILLICIT DRUG USE AND/OR PROBLEM ALCOHOL USE AT INTAKE AND FOLLOW-UP[31]



CMHC Clients in KTOS

FIGURE 3b. PERCENT OF KTOS CLIENTS WHO REPORTED ILLICIT DRUG USE AND/OR PROBLEM ALCOHOL USE AT INTAKE AND FOLLOW-UP[32]

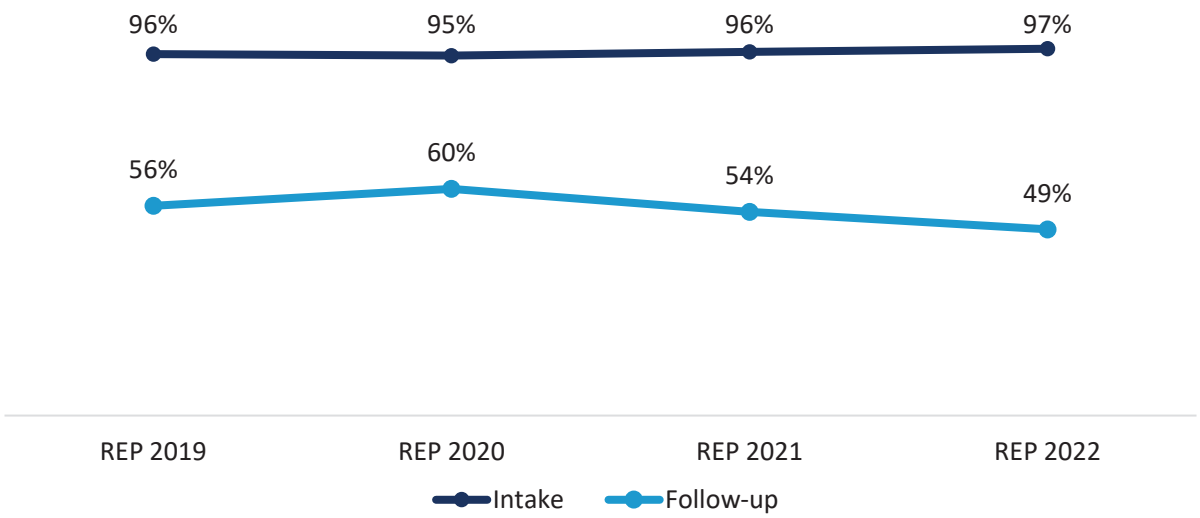


[31] Individuals who were incarcerated the entire 6-month period before intake and/or follow-up were not included in this analysis.

[32] Individuals who were incarcerated the entire 12-month period before intake and/or follow-up were not included in this analysis. Also, eligibility criteria for inclusion in the follow-up sample was modified beginning with the data for the 2019 report, so that individuals had to report alcohol or illicit drug use at intake to be included in the follow-up sample if they were incarcerated the entire period before entering treatment.

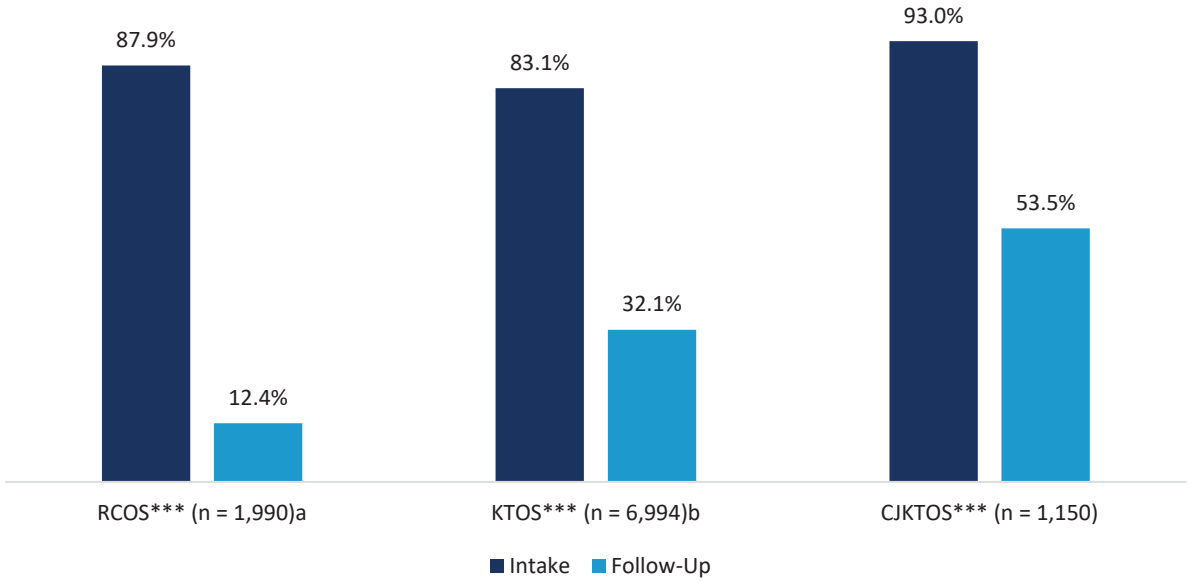
SAP Clients in CJKTOS

FIGURE 3c. PERCENT OF CJKTOS CLIENTS WHO REPORTED ILLICIT DRUG USE AND/OR PROBLEM ALCOHOL USE AT INTAKE AND FOLLOW-UP



- Decreases in percentages of individuals reporting illicit drug use at follow-up were statistically significant in all three studies.

FIGURE 4. AMONG INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD (12-MONTH OR 6-MONTH), CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING ILLICIT DRUG USE



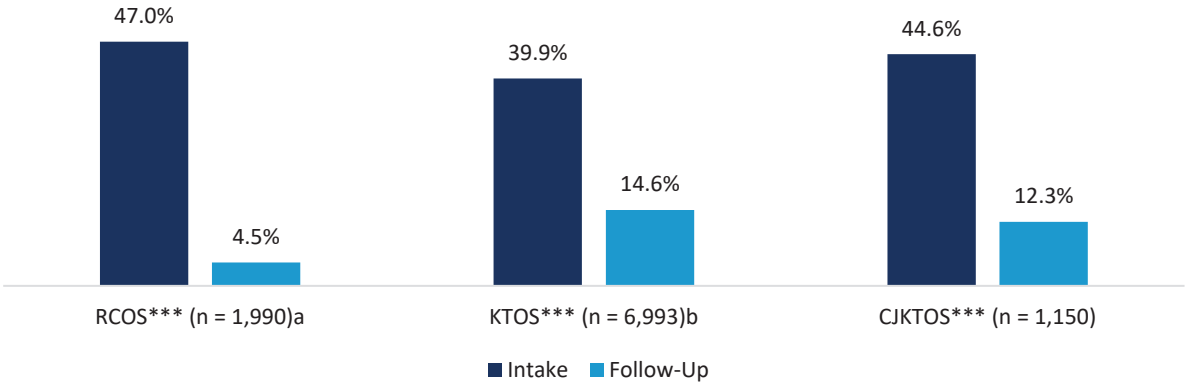
a—The following number of cases were excluded because they were incarcerated the entire 6 months before entering the recovery center program (n = 413), they were incarcerated the entire 6 months before follow-up (n = 10), or they had a missing value for the number of days incarcerated before follow-up (n = 4).

b—The following number of cases were excluded for the following reasons: they were incarcerated the entire 12 months before entering treatment (n = 96); they were incarcerated the entire 12 months before the follow-up survey (n = 2); they had missing data on the number of days incarcerated during the follow-up period (n = 40); and they had missing data for problem illicit drug use in the 12 months before follow-up (n = 26).

***p < .001.

- Decreases in percentages of individuals reporting problem use of alcohol (i.e., use to intoxication, or binge drinking) at follow-up were statistically significant in all three studies.
- Less than half of followed-up clients reported problem alcohol use at intake.
- At follow-up, the percentages of clients reporting problem alcohol use were between 4.5% (for RCOS) and 14.6% (for KTOS).

FIGURE 5. AMONG INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD (12-MONTH OR 6-MONTH), CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING PROBLEM ALCOHOL USE



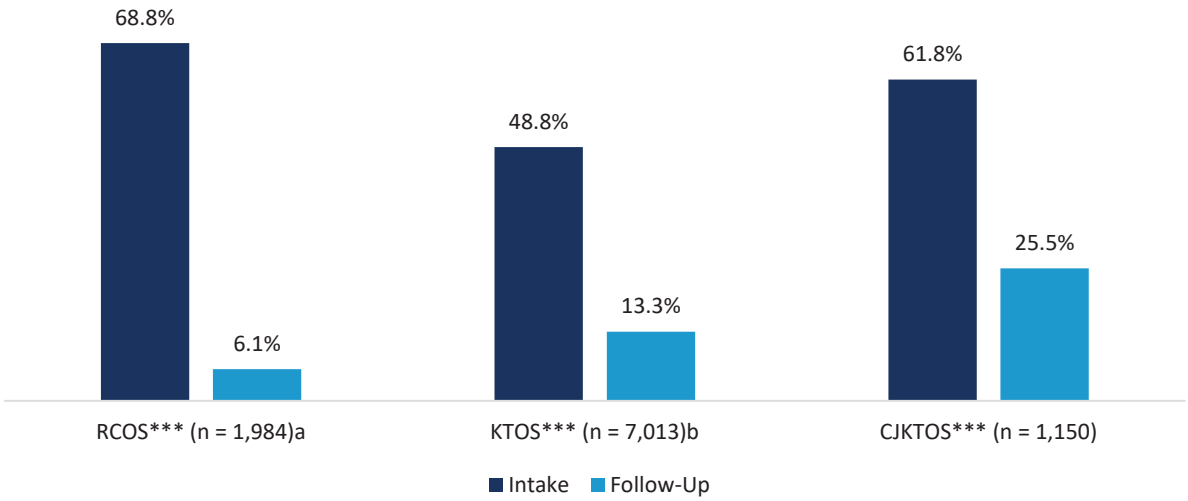
a—The following number of cases were excluded because they were incarcerated the entire 6 months before entering the recovery center program (n = 413), they were incarcerated the entire 6 months before follow-up (n = 10), or they had a missing value for the number of days incarcerated before follow-up (n = 4).

b—The following number of cases were excluded for the following reasons: they were incarcerated the entire 12 months before entering treatment (n = 96); they were incarcerated the entire 12 months before the follow-up survey (n = 2); they had missing data on the number of days incarcerated during the follow-up period (n = 40); and they had missing data for problem illicit drug use in the 12 months before follow-up (n = 27).

***p < .001.

- At intake, opioid use (including heroin)[33] was reported by the majority of RCOS and CJKTOS followed-up clients and by just under one-half of KTOS clients. The percent of individuals in all three studies reporting opioid use at follow-up was statistically significantly lower.

FIGURE 6. AMONG INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD (12-MONTH OR 6-MONTH), CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING OPIOID (INCLUDING HEROIN) USE



a—The following number of cases were excluded because they were incarcerated the entire 6 months before entering the recovery center program (n = 413), they were incarcerated the entire 6 months before follow-up (n = 10), they had a missing value for the number of days incarcerated before follow-up (n = 4), and they had missing values for opioid use in the 6 months before follow-up (n = 6).

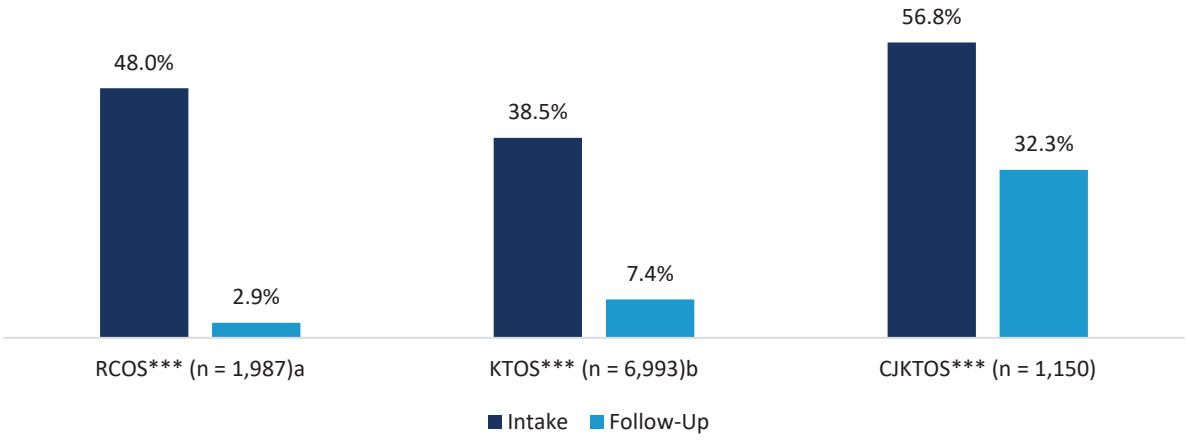
b—The following number of cases were excluded for the following reasons: they were incarcerated the entire 12 months before entering treatment (n = 96); they were incarcerated the entire 12 months before the follow-up survey (n = 2); they had missing data on the number of days incarcerated during the follow-up period (n = 40); and they had missing data for opioid (including heroin) use in the 12 months before follow-up (n = 7).

***p < .001.

[33] Illicit use of prescription opioids, buprenorphine, methadone and use of heroin were classified as opioid use.

- CJKTOS had the highest percentage of individuals reporting methamphetamine use at intake, followed by RCOS and then KTOS.
- Decreases in the percent of individuals reporting methamphetamine use from intake to follow-up were statistically significant in all three studies.

FIGURE 7. AMONG INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD (12-MONTH OR 6-MONTH), CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING METHAMPHETAMINE USE



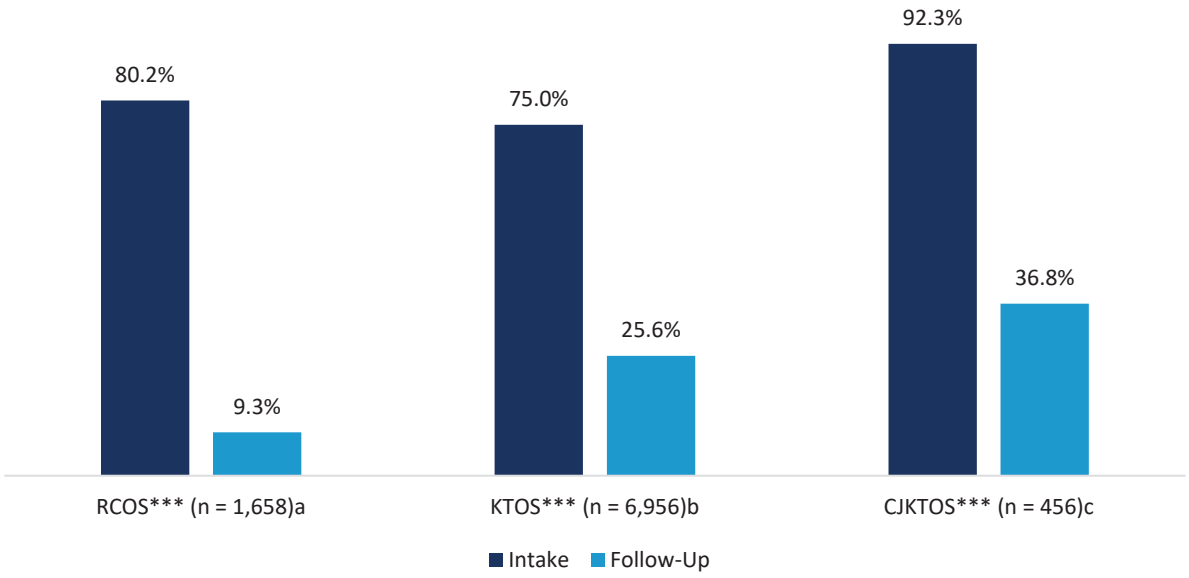
a— The following number of cases were excluded because they were incarcerated the entire 6 months before entering the recovery center program (n = 413), they were incarcerated the entire 6 months before follow-up (n = 10), they had a missing value for the number of days incarcerated before follow-up (n = 4), and they had missing values for methamphetamine use in the 6 months before follow-up (n = 3).

b—The following number of cases were excluded for the following reasons: they were incarcerated the entire 12 months before entering treatment (n = 96); they were incarcerated the entire 12 months before the follow-up survey (n = 2); they had missing data on the number of days incarcerated during the follow-up period (n = 40); and they had missing data for methamphetamine use in the 12 months before follow-up (n = 27).

***p < .001.

- The majority of clients in all three studies met criteria (per the number of symptoms in the DSM-5) for a mild, moderate, or severe substance use disorder at intake.
- The decreases in the percent of individuals meeting criteria for a mild, moderate, or severe substance use disorder from intake to follow-up were statistically significant in all three studies.

FIGURE 8. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS MEETING STUDY CRITERIA FOR MILD, MODERATE, OR SEVERE SUBSTANCE USE DISORDER



a—The following number of cases were excluded: completed a version of the intake survey that did not have DSM-5 SUD items (n = 738), and an additional 21 completed a version of the follow-up survey that did not have DSM-5 SUD items.

b—The following number of cases were excluded for the following reasons: they completed a version of the intake survey that did not have the DSM-5 SUD items (n = 52), or completed a version of the follow-up survey that did not have DSM-5 SUD items (n = 150).

c—The following number of cases were excluded for the following reasons: they completed a version of the follow-up survey that did not have DSM-5 SUD items (n = 694).

***p < .001.

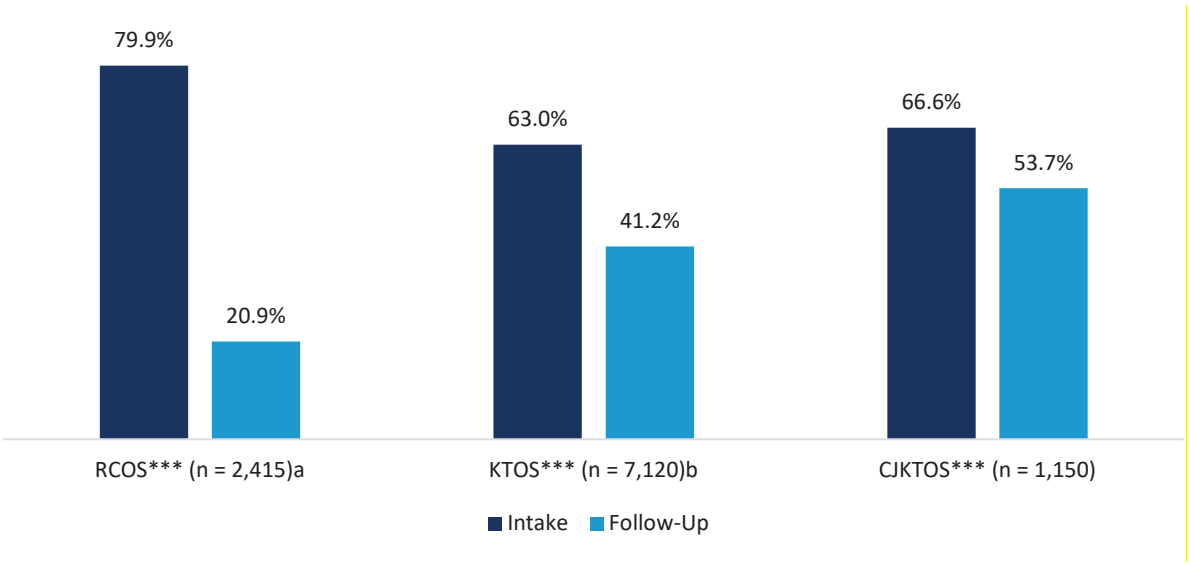
Change in Symptoms from Intake to Follow-up

Change in Major Depression and/or Generalized Anxiety from Intake to Follow-up

- The majority of clients in all three studies reported symptoms that met criteria for major depression and/or generalized anxiety at intake, from 63.0% (for KTOS) to 79.9% (for RCOS).

- Decreases from intake to follow-up were significant in all three studies. The decrease for RCOS clients was the greatest.

FIGURE 9. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS MEETING STUDY CRITERIA FOR MAJOR DEPRESSION AND/OR GENERALIZED ANXIETY



a—Two individuals in RCOS had missing data for major depression and/or generalized anxiety at follow-up because they had missing data for at least one of the items.

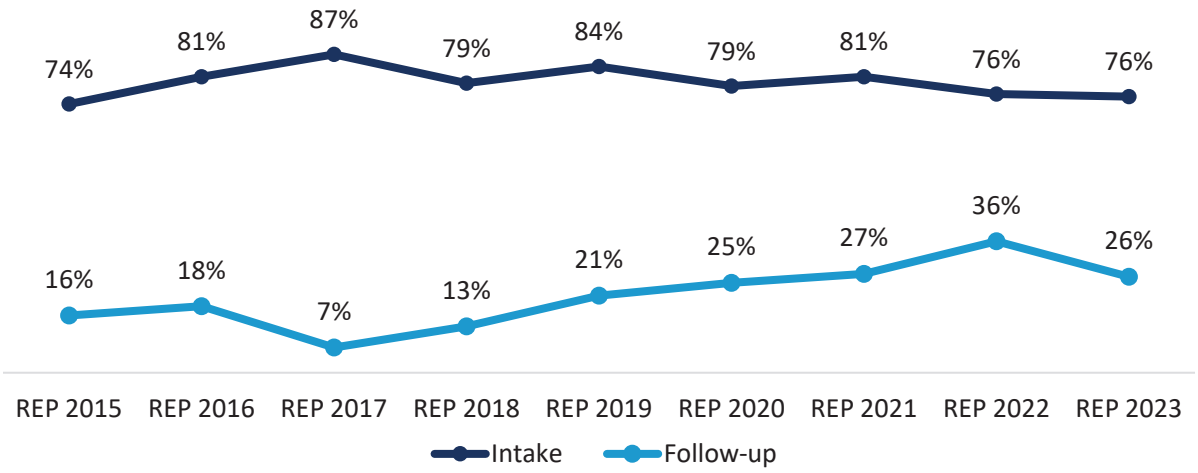
b—Thirty-eight KTOS cases were excluded because they had missing values on at least one of the variables used to compute major depression and/or generalized anxiety at follow-up.

***p < .001.

Trends: Depression and/or Generalized Anxiety at Intake and Follow-up

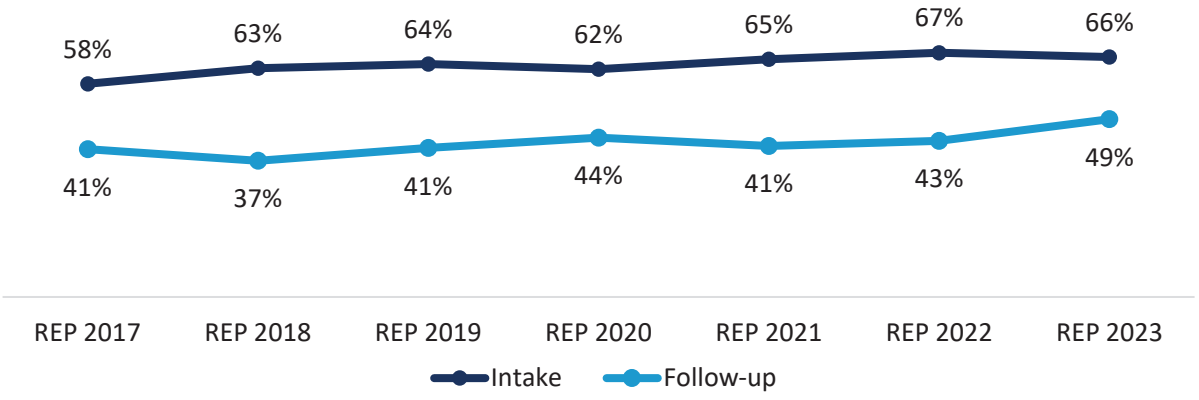
Recovery Kentucky Clients in RCOS

FIGURE 10a. PERCENT OF RCOS CLIENTS WHO REPORTED DEPRESSION AND/OR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP



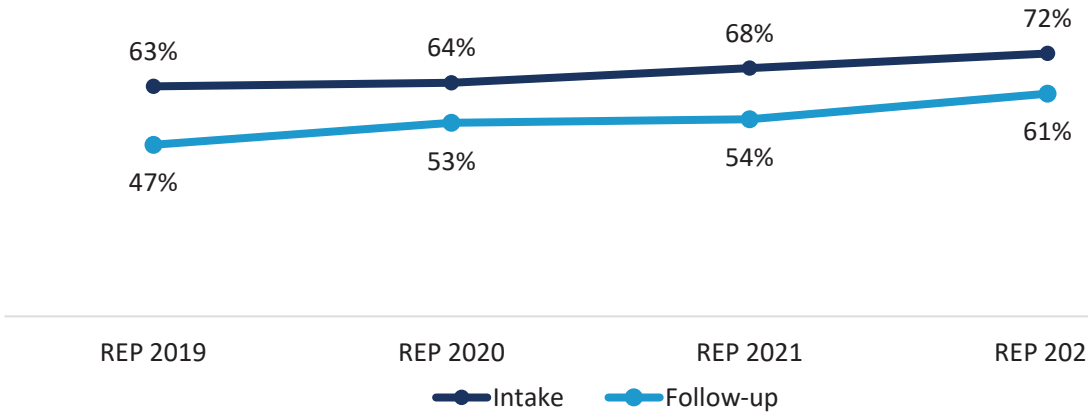
CMHC Clients in KTOS

FIGURE 10b. PERCENT OF KTOS CLIENTS WHO REPORTED DEPRESSION AND/OR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP



SAP Clients in CJKTOS

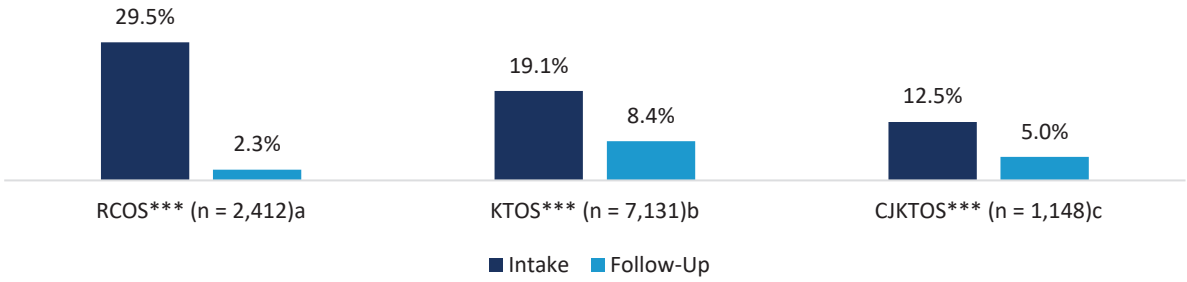
FIGURE 10c. PERCENT OF CJKTOS CLIENTS WHO REPORTED DEPRESSION AND/OR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP



Change in Suicidality[34] from Intake to Follow-up

- RCOS had the highest percentage of clients reporting suicidal ideation or attempts at intake, followed by KTOS, and CJKTOS had the lowest percentage.
- Decreases from intake to follow-up were statistically significant in all three studies.

FIGURE 11. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING SUICIDALITY



a—Five individuals in RCOS had missing data for suicidality at follow-up because they had missing data for at least one of the items.

b—Twenty-seven KTOS cases were excluded because they had missing values on at least one of the variables used to compute suicidality at follow-up.

c—Two CJKTOS cases were excluded because they had missing values for suicidality at follow-up.

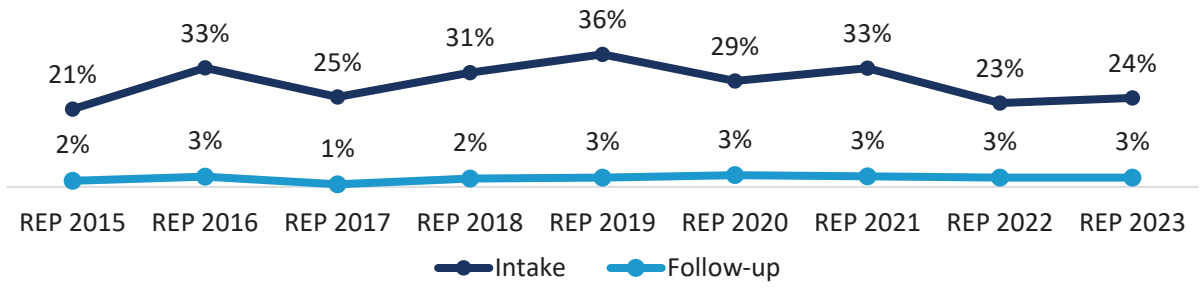
***p < .001.

[34] Reports of thoughts of suicide and/or suicide attempts were classified as suicidality.

Trends: Suicidality at Intake and Follow-up

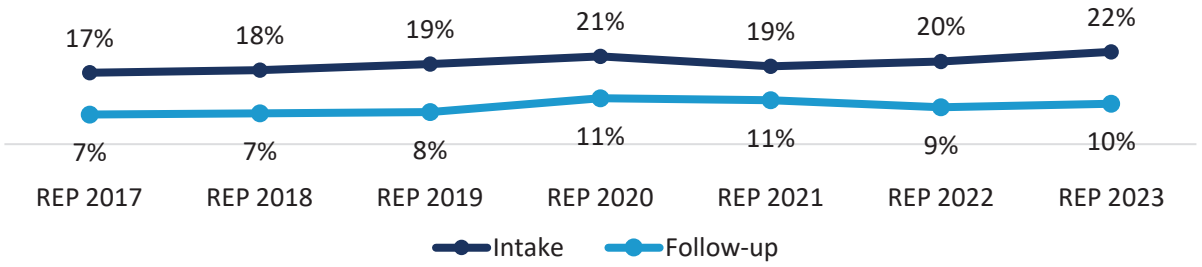
Recovery Kentucky Clients in RCOS

FIGURE 12a. PERCENT OF RCOS CLIENTS WHO REPORTED SUICIDALITY AT INTAKE AND FOLLOW-UP



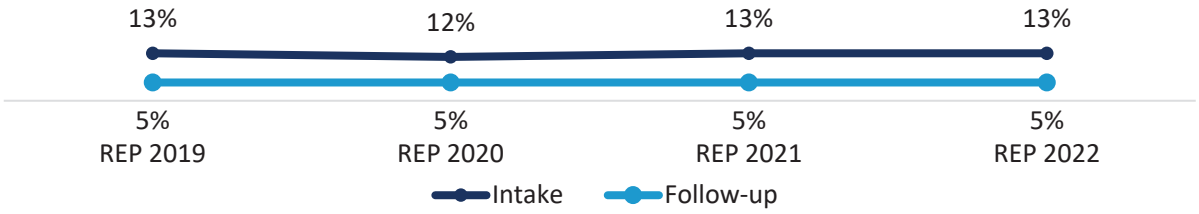
CMHC Clients in KTOS

FIGURE 12b. PERCENT OF KTOS CLIENTS WHO REPORTED SUICIDALITY AT INTAKE AND FOLLOW-UP



SAP Clients in CJKTOS

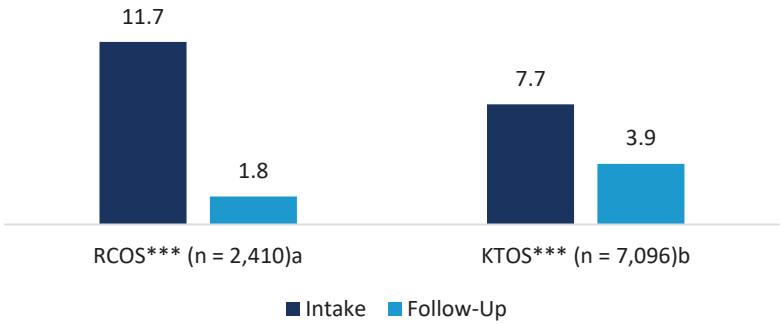
FIGURE 12c. PERCENT OF CJKTOS CLIENTS WHO REPORTED SUICIDALITY AT INTAKE AND FOLLOW-UP



Change in Poor Physical and/or Mental Health Limiting Daily Activities from Intake to Follow-up

- RCOS and KTOS clients reported significantly fewer mean days their poor physical and/or mental health limited their daily activities at follow-up compared to intake. This item was not included on the follow-up survey for CJKTOS.

FIGURE 13. CHANGE FROM INTAKE TO FOLLOW-UP IN NUMBER OF DAYS OUT OF THE PAST 30 DAYS POOR MENTAL OR PHYSICAL HEALTH LIMITED CLIENT'S DAILY ACTIVITIES



a—Seven individuals in RCOS had missing data for number of days poor physical health or mental health limited their daily activities at follow-up.

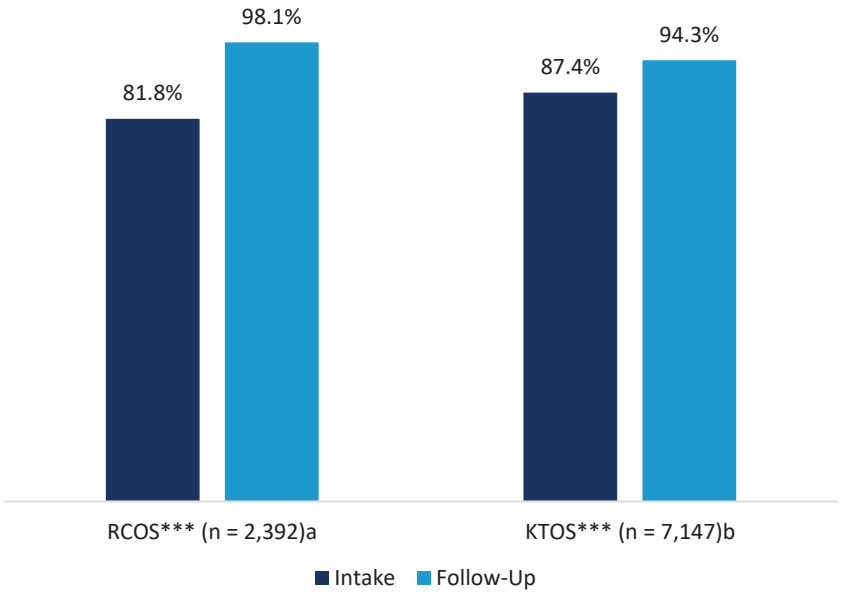
b—Sixty-two KTOS cases were excluded because they had missing values for number of days poor physical health or mental health limited their daily activities at follow-up.

***p < .001.

Change in Overall Health[35] from Intake to Follow-up

- The majority of RCOS and KTOS clients reported their overall health was fair, good, very good, or excellent at intake and follow-up, with statistically significant increases at follow-up. This item was not included on the follow-up survey for CJKTOS.

FIGURE 14. CHANGE FROM INTAKE TO FOLLOW-UP IN RATING OF FAIR, GOOD, VERY GOOD, OR EXCELLENT FOR OVERALL HEALTH



a—Twenty-five individuals in RCOS had missing data for their rating of overall health at intake (n = 11) or at follow-up (n = 14).

b—Eleven KTOS cases were excluded because they had missing values for the rating of their overall health at follow-up.

***p < .001.

Change in Functioning from Intake to Follow-up

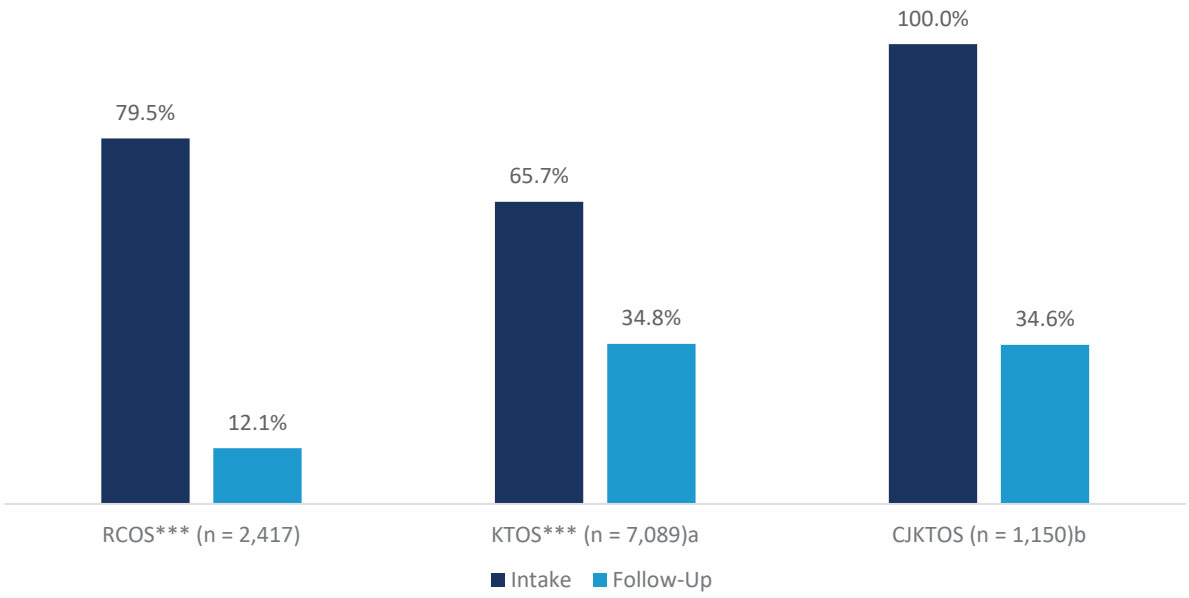
The following dimensions of client functioning at intake and follow-up are presented for clients in the three outcome evaluations in this section: (1) change in involvement with the criminal justice system, (2) change in employment, (3) change in homelessness or unstable housing, (4) change in attending mutual help recovery group meetings, (5) change in contact with people supportive of recovery, and (6) change in perceptions of chances abstaining from substance use.

[35] The overall health measure is not on the follow-up survey for CJKTOS.

Change in Involvement with the Criminal Justice System from Intake to Follow-up

- Because of the nature of how individuals become involved in CJKTOS (i.e., voluntarily enter SAP in jail or prison), all CJKTOS were incarcerated before program entry.
- The majority of KTOS and RCOS clients reported being arrested and/or incarcerated in the 12 (or 6) months before entering the program. Significantly smaller minorities of clients reported being arrested and/or incarcerated at follow-up.

FIGURE 15. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING BEING ARRESTED AND/OR INCARCERATED IN THE PAST 12 MONTHS (OR 6 MONTHS)



a—Sixty-nine individuals in KTOS had missing data for being arrested and/or incarcerated in the follow-up period

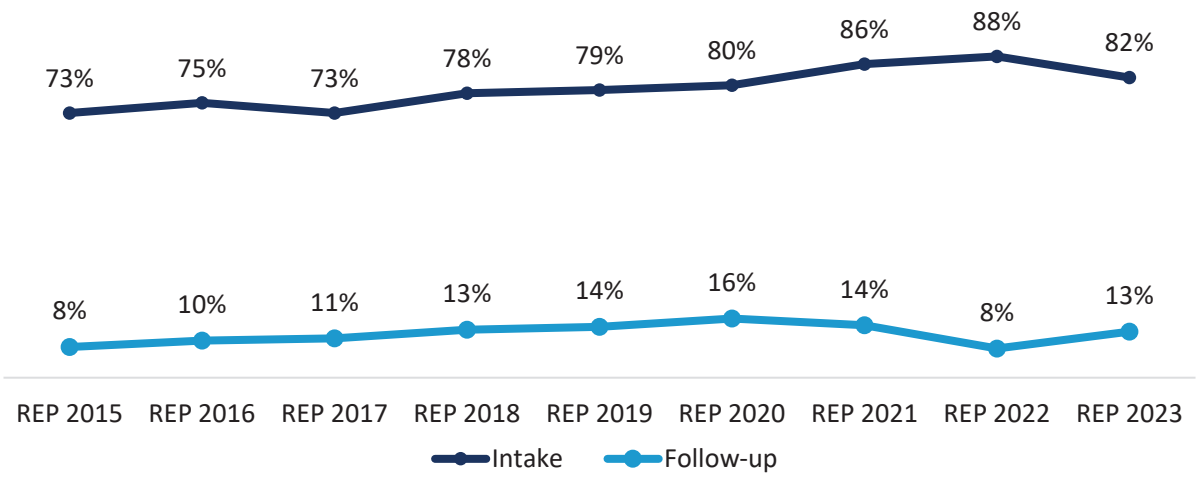
b—Statistical significance cannot be calculated for CJKTOS due to all individuals being incarcerated at time of program entry and/or entering treatment due to recent criminal-legal system involvement. McNemar statistic cannot be calculated when one of the cells in the crosstabulation has a value of 0.

***p < .001.

Trends: Arrests and/or Incarceration at Intake and Follow-up

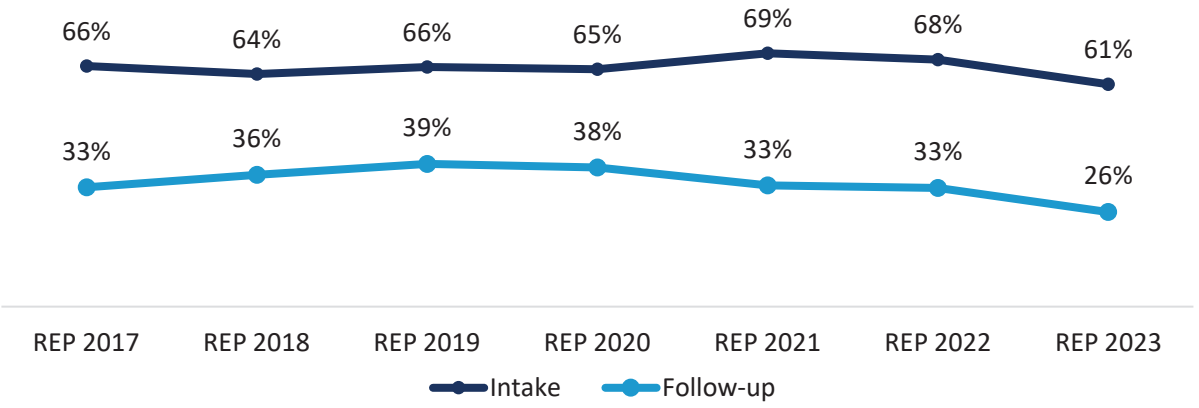
Recovery Kentucky Clients in RCOS

FIGURE 16a. PERCENT OF RCOS CLIENTS WHO REPORTED BEING ARRESTED AND/OR INCARCERATED IN THE PAST 12 MONTHS AT INTAKE AND FOLLOW-UP



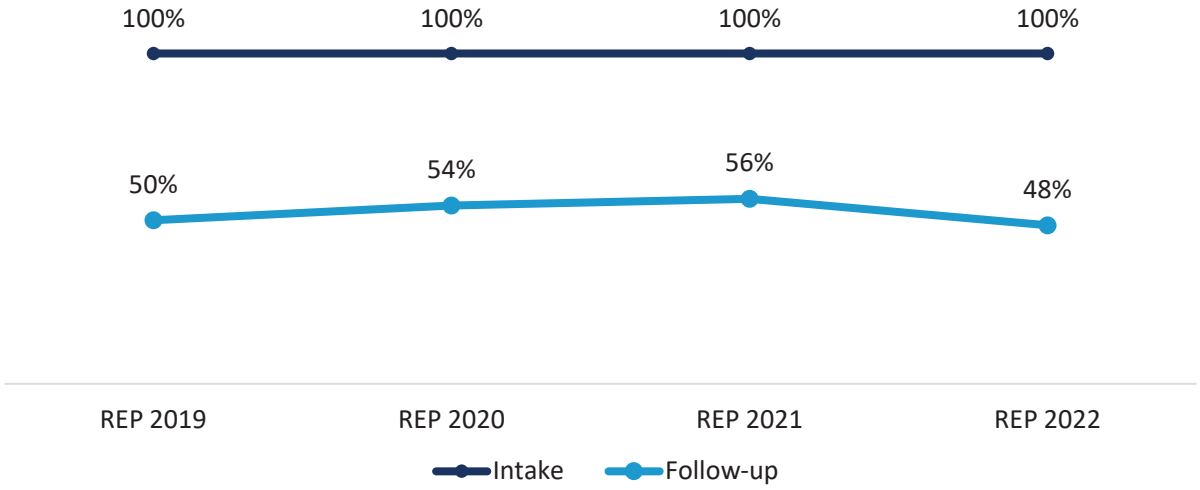
CMHC Clients in KTOS

FIGURE 16b. PERCENT OF KTOS CLIENTS WHO REPORTED BEING ARRESTED AND/OR INCARCERATED IN THE PAST 12 MONTHS AT INTAKE AND FOLLOW-UP



SAP Clients in CJKTOS

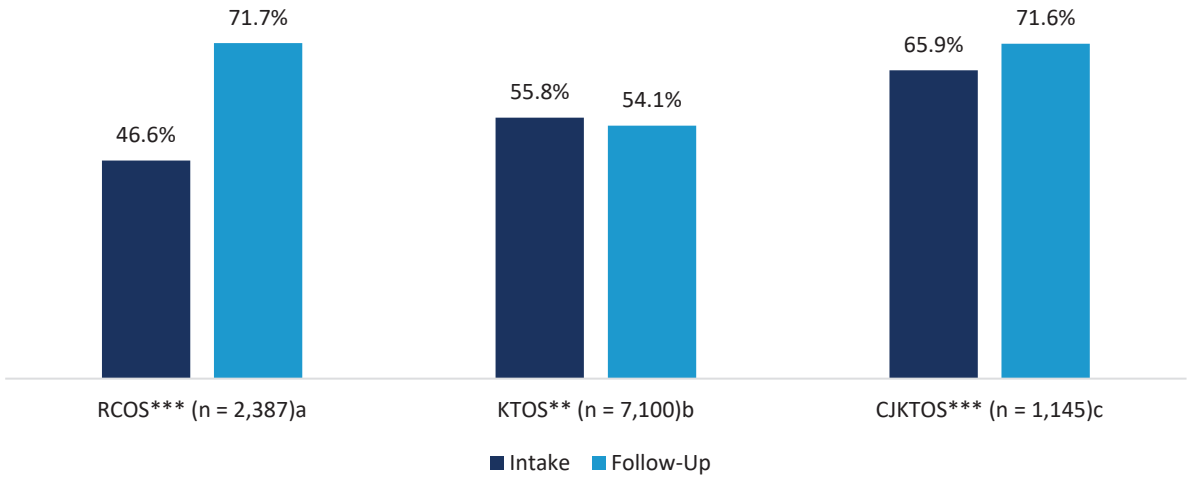
FIGURE 16c. PERCENT OF CJKTOS CLIENTS WHO REPORTED BEING ARRESTED AND/OR INCARCERATED IN THE PAST 12 MONTHS AT INTAKE AND FOLLOW-UP



Change in Employment from Intake to Follow-up

- The percent of RCOS and CJKTOS clients who reported their usual employment was full- or part-time at follow-up was significantly higher than at intake. However, KTOS clients had a statistically significant, but small decrease in the percent of individuals employed from intake to follow-up.

FIGURE 17. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING FULL-TIME OR PART-TIME EMPLOYMENT AS USUAL EMPLOYMENT IN THE PAST 12 MONTHS (OR 6 MONTHS)



a—Thirty individuals in RCOS had missing data for usual employment at follow-up.

b—Fifty-eight individuals in KTOS had missing data for usual employment at follow-up

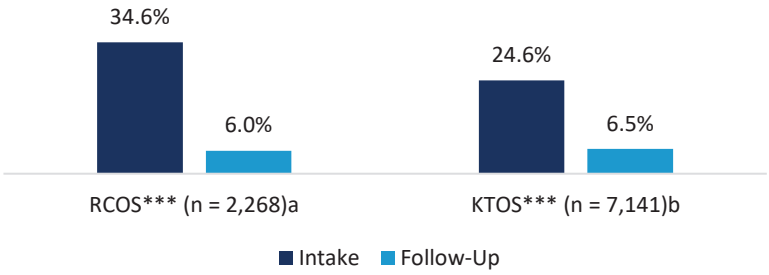
c—Four individuals in CJKTOS had missing data for usual employment at follow-up, one at baseline.

**p < .01, ***p < .001.

Change in Homelessness and Unstable Housing[36] from Intake to Follow-up

- More than one-third of followed-up RCOS clients one-fourth of KTOS clients reported homelessness at intake, with statistically significant decreases at follow-up.
- There was no significant change in unstable housing for CJKTOS clients.

FIGURE 18a. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING HOMELESSNESS IN THE PAST 12 MONTHS (OR 6 MONTHS)

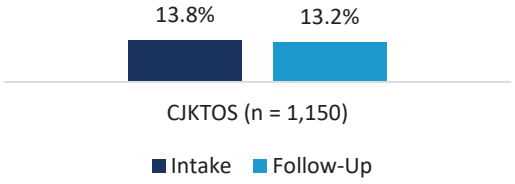


a—149 individuals in RCOS had missing data for homelessness at follow-up because they were living in a recovery center at follow-up and were not asked the question (n = 128), or they had missing data for the question (n = 21).

b—Seventeen individuals in KTOS had missing data for homelessness at follow-up.

***p < .001.

FIGURE 18b. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING UNSTABLE HOUSING FOR THE MAJORITY OF THE PAST 12 MONTHS

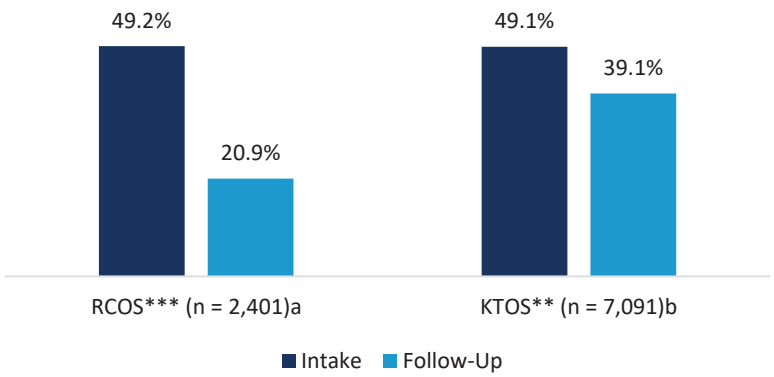


[36] Questions about housing and homelessness were asked differently in CJKTOS compared to RCOS and KTOS. In CJKTOS, individuals were not asked whether they considered themselves to be homeless at follow-up, so a measure of overall housing stability was used. Participants were asked about their usual living situation in the past 12 months, and if they reported living most of the time in a home or apartment (their own, or someone else's), they were considered stably housed.

Change in Economic Hardship from Intake to Follow-up

- Half of RCOS and KTOS clients reported having difficulty meeting basic needs at intake (including non-payment of utilities and rent, eviction, food insecurity, and difficulty paying for healthcare).
- Significantly lower percentages of RCOS and KTOS clients reported having difficulty meeting basic needs at follow-up than at intake.

FIGURE 19. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING DIFFICULTY MEETING BASIC NEEDS IN THE PAST 12 MONTHS (OR 6 MONTHS)[37]



a—Sixteen individuals in RCOS had missing data for difficulty meeting basic needs at follow-up.

b—Sixty-seven individuals in KTOS had missing data for difficulty meeting basic needs at follow-up

**p < .01, ***p < .001.

Change in Recovery Support

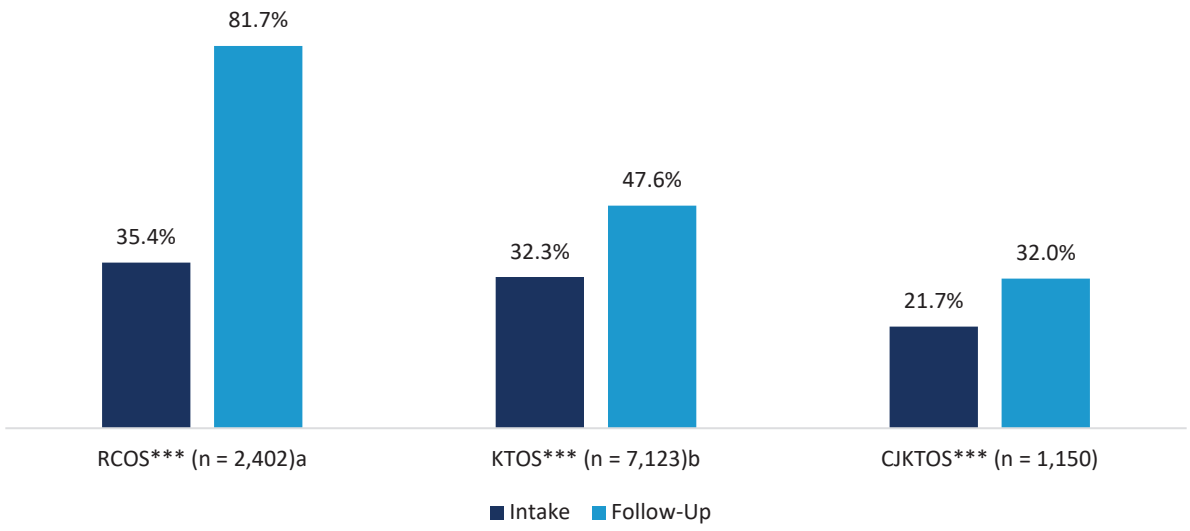
Recovery is recognized as an important outcome of psychosocial interventions for mental health and SUD (IOM, 2015). There are a variety of recovery measures with different assumptions about the underlying mechanisms of recovery. Included in the three outcome evaluations were measures about (1) attending mutual help recovery meetings (i.e., AA/NA), (2) having recent contact with people supportive of recovery, and (3) perceptions of chances of abstaining from substances.

[37] Questions about economic hardship were not included on the follow-up surveys in CJKTOS.

Change in Attending Mutual Help Recovery Meetings from Intake to Follow-up

- Around one-third of RCOS and KTOS clients reported attending mutual help recovery meetings (e.g., AA/NA) in the 30 days before entering the program.
- The increase in percent of RCOS clients attending mutual help recovery meetings at follow-up was more than double the percent at intake.
- The increase in attending mutual help recovery meetings was statistically significant for KTOS and CJKTOS clients.

FIGURE 20. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING ATTENDING MUTUAL HELP RECOVERY GROUP MEETINGS IN THE PAST 30 DAYS



a—Fifteen individuals in RCOS had missing data for number of mutual help recovery group meetings attended in the follow-up period

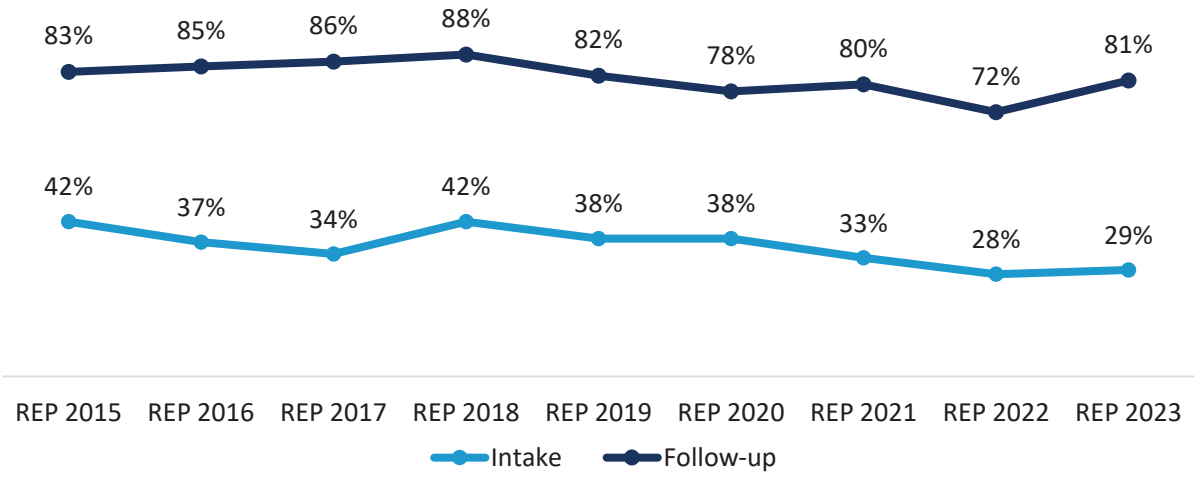
b—Thirty-five individuals in KTOS had missing data for number of mutual help recovery group meetings attended in the follow-up period

***p < .001.

Trends: Attending Mutual Help Recovery Group Meetings at Intake and Follow-up

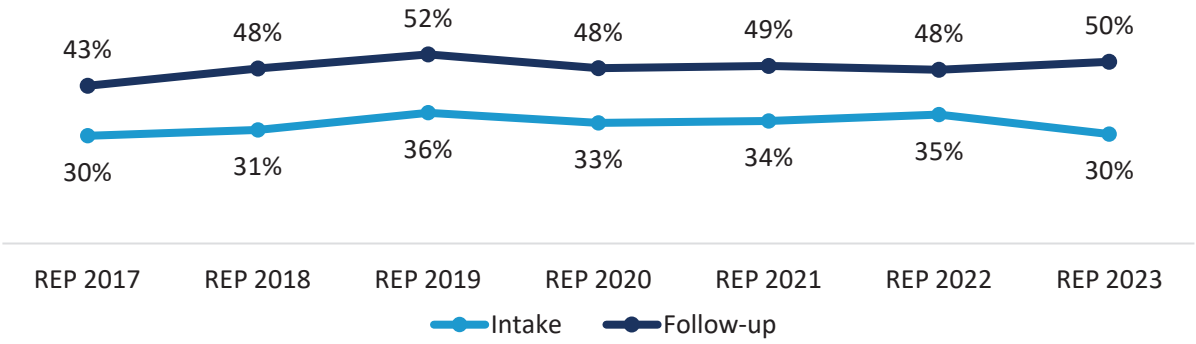
Recovery Kentucky Clients in RCOS

FIGURE 21a. PERCENT OF RCOS CLIENTS WHO REPORTED ATTENDING MUTUAL HELP RECOVERY GROUP MEETINGS AT INTAKE AND FOLLOW-UP



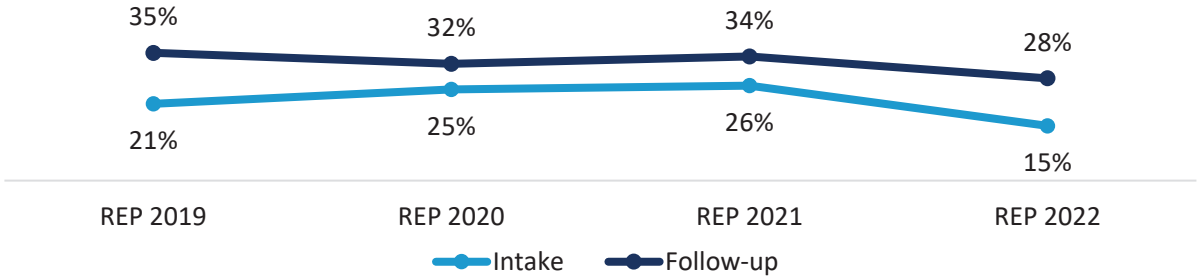
CMHC Clients in KTOS

FIGURE 21b. PERCENT OF KTOS CLIENTS WHO REPORTED ATTENDING MUTUAL HELP RECOVERY GROUP MEETINGS AT INTAKE AND FOLLOW-UP



SAP Clients in CJKTOS

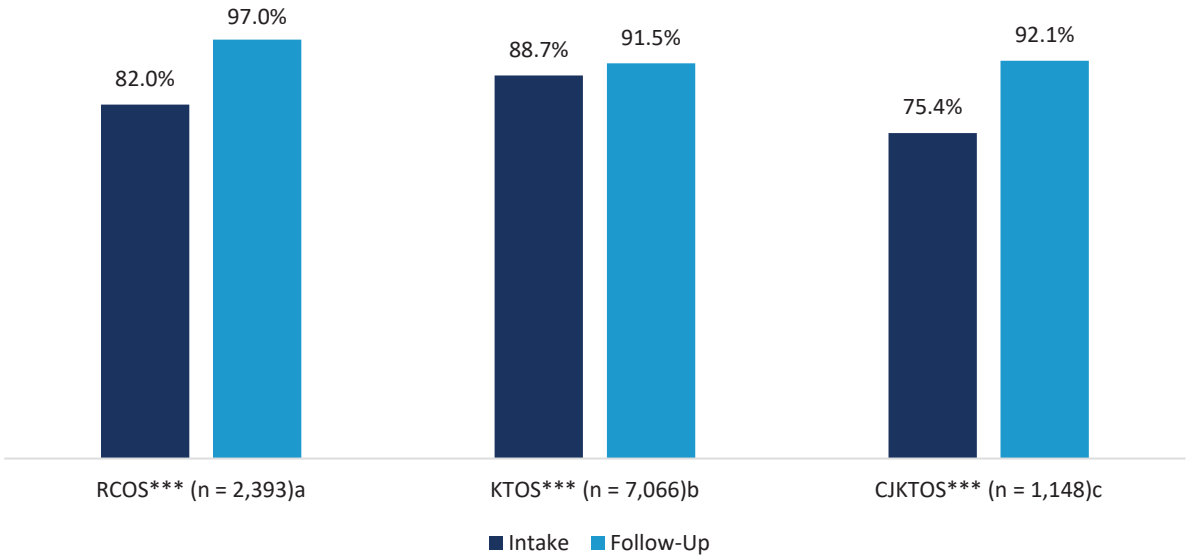
FIGURE 21c. PERCENT OF CJKTOS CLIENTS WHO REPORTED ATTENDING MUTUAL HELP RECOVERY GROUP MEETINGS AT INTAKE AND FOLLOW-UP



Change in Contact with People Supportive of Recovery from Intake to Follow-up

- There were statistically significant increases in the percent of clients who reported having contact with family or friends who supported their recovery in the past 30 days at follow-up compared to intake.

FIGURE 22. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS WHO HAD 30-DAY CONTACT WITH FAMILY OR FRIENDS WHO SUPPORTED THEIR RECOVERY



a—Twenty-four individuals in RCOS had missing data for contact with people who supported their recovery in the follow-up period

b—Sixty-eight individuals in KTOS had missing data for contact with people who supported their recovery in the follow-up period

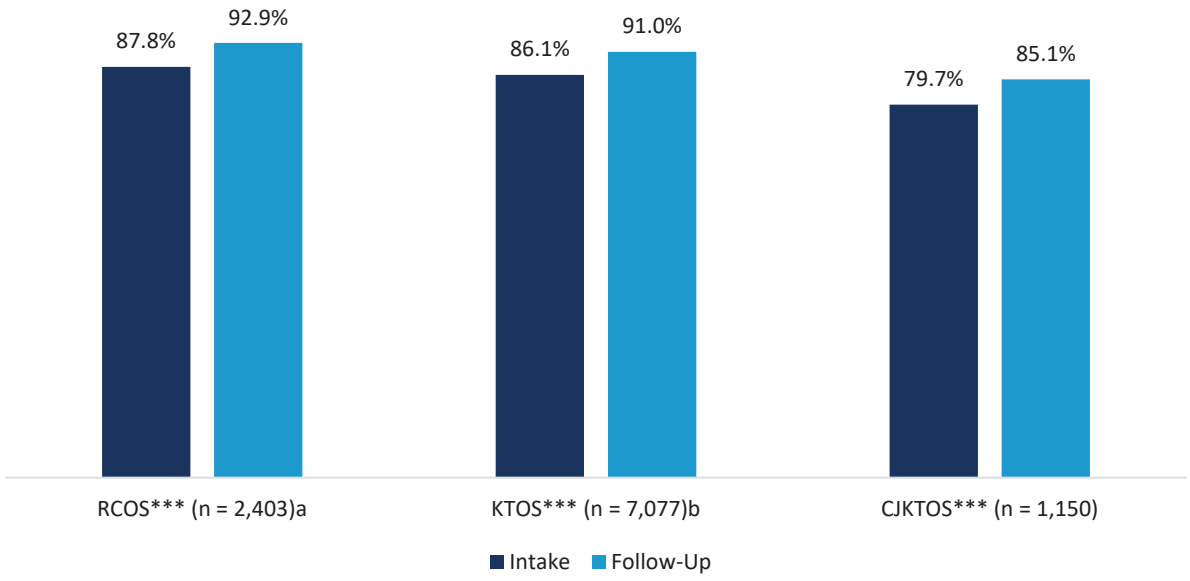
c—Two individuals in CJKTOS had missing data for baseline contact with people who supported their recovery

***p < .001.

Change in Perceptions of Chances Abstaining from Substance Use from Intake to Follow-up

- The majority of clients in each of the three studies reported their chances of getting or staying off drugs/alcohol were moderately good or very good at intake.
- There were statistically significant increases from intake to follow-up in the percent of clients who reported their chances of staying off drugs/alcohol were moderately good or very good in all three studies.

FIGURE 23. CHANGE FROM INTAKE TO FOLLOW-UP IN PERCENT OF FOLLOWED-UP CLIENTS REPORTING THEY HAD MODERATELY GOOD OR VERY GOOD CHANCES OF GETTING/STAYING OFF DRUGS/ALCOHOL



a—14 individuals in RCOS had missing data for their chances of getting/stay sober at follow-up.

b—81 individuals in KTOS had missing data chances of getting off/staying sober at follow-up.

***p < .001.

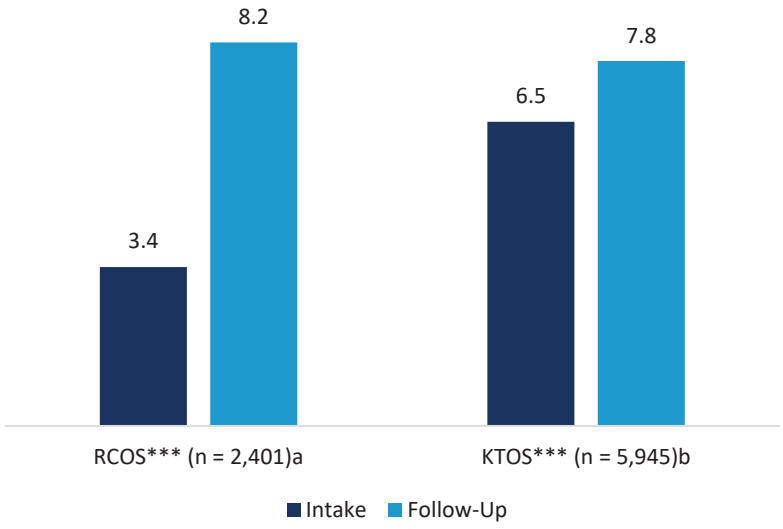
Change in Client Well-Being from Intake to Follow-up

Well-being, including quality of life, is the third category of outcomes for psychosocial interventions the IOM (2015) identified. Subjective quality of life was assessed at intake and follow-up for clients in two of the three outcome evaluation studies: RCOS and KTOS.

Change in Subjective Quality of Life from Intake to Follow-up[38]

- The average subjective quality of life of RCOS client at intake was below the mid-point of the scale. At follow-up, RCOS clients' subjective quality of life was statistically significantly higher.
- The average subjective quality of life of KTOS clients at intake was above the mid-point and increased statistically significantly higher at follow-up.

FIGURE 24. CHANGE FROM INTAKE TO FOLLOW-UP IN RATING OF SUBJECTIVE QUALITY OF LIFE



a—Sixteen individuals in RCOS had missing data for rating of quality of life at follow-up.

b—The quality of life item was added to the KTOS intake survey in June 2015, thus, 1,182 had missing values on rating of quality of life at intake because they were not asked the question. An additional 31 individuals had missing values on rating of quality of life at follow-up.

***p < .001.

Summary of Change in Targeted Factors from Intake to Follow-up

In all three outcome evaluation studies, there were significant improvements in substance use and other targeted factors (e.g., symptoms, functioning, well-being, and recovery support) among individuals in the follow-up samples. Of primary concern to SUD programs/treatment is the rate of return to substance use among clients. In all three outcome evaluations, there were statistically significant as well as practically significant reductions in problem use of alcohol and illicit drug use. Furthermore, in all three outcome evaluations, the percent of clients with no SUD (per DSM-5 criteria) was

[38] The rating of quality of life item was not on the CJKTOS follow-up survey.

significantly higher at follow-up than at intake.

Other important outcomes discussed in the literature on performance indicators were included in the three outcome evaluations: symptoms, functioning, well-being, and recovery support. Regarding symptoms, there were significant reductions in mental health problems from intake to follow-up. Regarding functioning, there were significant reductions in involvement with the criminal justice system and significant reductions in homelessness and economic hardship (for the two studies in which they were examined). For Recovery Kentucky and SAP clients, a significantly higher percentage of clients were employed at follow-up than at intake. For the two outcome evaluations that included subjective quality of life as a measure, there were statistically significant increases in clients' subjective quality of life, which the performance indicator literature frames as a component of well-being. In all three outcome evaluations, significantly more individuals reported attending mutual help recovery meetings as well as having recent contact with someone who supported their recovery at follow-up than at intake. The only outcome that did not show improvement in one of the outcome evaluations (KTOS) was the percent of clients who reported having employment at follow-up.

Client Perceptions of SUD Programs Reported at Follow-Up

Client perceptions of care includes clients' assessment of the overall quality of the program as well as specific aspects of care they received, such as access to care, shared decision making, communication, respect, willingness to recommend to others and overall satisfaction with services (IOM, 2015). Various items were included in the follow-up surveys asking clients about their perceptions of the programs they participated in. Using the dimensions of client perceptions of care identified by the IOM (2015), the specific items included in the follow-up surveys were mapped onto the domains with face validity, but no other psychometrics were assessed (see Table 13).

- The overall average rating for programs was in the top quarter of the scale, between 7.5 (for CJKTOS) and 8.6 (for RCOS).
- The majority of individuals in RCOS (88.7%) and KTOS (80.9%) believed that the program worked pretty well or extremely well for them.
- The majority of individuals in CJKTOS (85.9%) believed the program was successful for them.
- The majority of individuals in RCOS and KTOS would refer a close friend/family member to the program.
- Average ratings for shared decision-making and therapeutic alliance were high for RCOS and KTOS, indicating fairly high shared decision-making and therapeutic alliance for most individuals.
- Average ratings for respect, communication, and perceived effectiveness were high for RCOS, KTOS and CJKTOS, indicating fairly high perceived levels of respect, communication, and effectiveness of the program for most individuals.

TABLE 13. CLIENT PERCEPTIONS OF CARE SELF-REPORTED AT FOLLOW-UP

	RCOS Rep 2015-2023 (n = 2,417)	KTOS Rep 2017-2023 (n = 7,158)	CJKTOS FY 2017-FY 2021 (n = 1,150)
Mean rating of treatment [1=worst, 10=best possible]	8.6	8.3	7.5
How well treatment/program worked for client			
Not at all	2.7%	6.0%	---
Somewhat	8.7%	13.2%	---
Pretty well	22.9%	32.4%	---
Extremely well	65.8%	48.5%	---
Client considered the program to be successful (Yes)	---	---	85.9%
Client would refer a close friend/family member to the program (Yes)	89.7%	90.0%	---
	(n = 1,052)[39]	(n = 3,244)[40]	(n = 1,150)
Shared decision-making	8.4	8.5	--
RCOS and KTOS: Low = 0, 10 = high rating for "worked on things important to you" and "You had input into goals, plans, and progress."			
Respect	8.7	8.7	8.6
RCOS and KTOS: 0 = Low, 10 = high rating for "staff believed in you." CJKTOS: 0 = Low, 10 = high rating for "You were treated with respect."			
Communication	7.9	8.1	8.7
RCOS and KTOS: 0 = Low, 10 = high rating for "You felt heard," and "You fully discussed issues with staff." CJKTOS: 0 = Low, 10 = high rating for "Staff explained the your rights as a client," "You understood your treatment plan," and "You understood what was expected of you during treatment."			

[39] Items were added in March 2018, then removed in September 2020 to accommodate questions about pandemic measures/restrictions, and then added again to the follow-up survey in February 2021.

[40] Items were added in March 2018, then removed in September 2020 to accommodate questions about pandemic measures/restrictions, and then added again to the follow-up survey in February 2021.

TABLE 13. CLIENT PERCEPTIONS OF CARE SELF-REPORTED AT FOLLOW-UP (CONT.)

	RCOS Rep 2015-2023 (n = 2,417)	KTOS Rep 2017-2023 (n = 7,158)	CJKTOS FY 2017-FY 2021 (n = 1,150)
Therapeutic alliance ..... RCOS and KTOS: Low = 0, 10 = high rating for "You had a connection with staff," and "You believed staff cared about you."	8.5	8.5	--
Perceived effectiveness..... RCOS and KTOS: Low = 0, 10 = high rating for "The approach and method were a good fit for you," and "Your expectations for the program were met." CJKTOS: Low = 0, 10 = high rating for "Client received the services they needed to help them get better," and "The client feel better about yourself as a result of treatment"	8.5	8.3	8.1

Summary of Clients' Perceptions of Care at Follow-up

Clients' average ratings of the overall quality of the programs were high. Perhaps even more importantly, the majority of clients in all three outcome believed the program was successful or worked well for them. The vast majority also reported they would refer a close friend/family member to the program, which reflects the high value they place on the program. Moreover, individuals in all three outcome evaluations gave high average ratings for items about being treated with respect, good communication between staff and clients, and the perceived effectiveness of the program for them. Participants in RCOS and KTOS also gave high average ratings for shared decision-making and the quality of the therapeutic alliance; participants in CJKTOS were not asked questions about shared decision-making and the therapeutic alliance.

Case-adjusted Outcomes at Follow-up

As discussed in the literature review (see Appendix A), client outcomes can be influenced by many factors outside the reach of treatment (e.g., personal resources, treatment history, community resources); thus, examination of client outcomes must consider how to measure and represent the different levels of severity of illness (and resources) with which clients enter treatment, referred to as risk adjustment. Valid risk adjustment decreases the probability of the unintended consequence of rewarding programs that appear to have better outcomes, without consideration that their client population has less severe problems than other programs with different client and population characteristics (IOM, 2015; Urbanoski & Inglis, 2019). The multivariate models presented in this section examine two primary outcomes (meeting criteria for a mild, moderate, or severe SUD at follow-up and having all positive dimensions of recovery), while adjusting for demographic variables and correlates.

Meeting Criteria for Mild, Moderate, or Severe SUD at Follow-up

Recovery Kentucky Clients in RCOS

In the binomial logistic regression model of meeting study criteria for mild, moderate or severe SUD (per DSM-5 criteria) regressed on intake variables, only one variable was associated with the odds of having mild, moderate or severe SUD at follow-up: number of prior episodes of SUD treatment in lifetime (see Table 14).

- The odds of meeting criteria for mild, moderate, or severe SUD at follow-up increased with increasing number of prior episodes of SUD treatment in lifetime

Gender, race/ethnicity, age, number of symptoms for SUD at intake, and number of days of poor health limiting daily activities were not significantly associated with the odds of having mild, moderate or severe SUD at follow-up.

TABLE 14. BINOMIAL LOGISTIC REGRESSION OF MEETING STUDY CRITERIA FOR MILD, MODERATE OR SEVERE SUD IN THE 6 MONTHS BEFORE FOLLOW-UP FOR RCOS CLIENTS

Predictor variables	b	SE	Odds ratio [95% CI]
Gender [1=male, 0 = female]	.117	.170	1.124 [.805, 1.569]
Race/ethnicity (1=White, 0 = Minority]	.351	.357	1.420 [.705, 2.860]
Age	.002	.010	1.002 [.984, 1.021]
Number of symptoms for DSM-5 SUD criteria endorsed at intake	.042	.021	1.043 [1.000, 1.087]
Number of prior episodes of treatment in lifetime	.039	.018	1.039* [1.004, 1.076]
Constant	-3.188	.538	.041***
Model χ^2 =	10.424		
Pseudo R^2 =	.014		
n =	1,654[a]		

a—763 cases were excluded because they had missing values on at least one of the variables in the model. DSM-5 SUD items were added to the intake survey and follow-up survey in June 2015; thus, 738 cases had missing values for the number of symptoms for DSM-5 SUD criteria at intake.

*p < .05, ***p < .001.

Community Mental Health Centers Clients in KTOS

In the binomial logistic regression model of meeting study criteria for mild, moderate or severe SUD (per DSM-5 criteria) regressed on intake variables, the following variables were associated with the odds of having mild, moderate or severe SUD at follow-up: gender, race/ethnicity, age, number of symptoms for severity of SUD at intake, number of days poor physical or mental health limited the clients' activities at intake, and number of prior episodes of SUD treatment in lifetime (see Table 15).

- The odds of meeting criteria for mild, moderate or severe SUD at follow-up were greater for male individuals relative to female individuals.
- The odds of meeting criteria for mild, moderate or severe SUD at follow-up were greater for White individuals relative to individuals who were racial minorities.
- The odds of meeting criteria for mild, moderate or severe SUD at follow-up decreased as age increased.
- The odds of meeting criteria for mild, moderate or severe SUD at follow-up increased with increasing number of symptoms for SUD at intake.
- The odds of meeting criteria for mild, moderate or severe SUD at follow-up increased with increasing number of days poor physical or mental health limited activities in the 30 days before intake.
- The odds of meeting criteria for mild, moderate or severe SUD at follow-up increased with increasing number of prior episodes of SUD treatment in lifetime

TABLE 15. BINOMIAL LOGISTIC REGRESSION OF MEETING STUDY CRITERIA FOR MILD, MODERATE, OR SEVERE SUD IN THE 12 MONTHS BEFORE FOLLOW-UP FOR KTOS CLIENTS

Predictor variables	b	SE	Odds ratio [95% CI]
Gender [1=male, 0 = female]	.140	.058	1.151* [1.027, 1.290]
Race/ethnicity (1=White, 0 = Minority]	.302	.116	1.352* [1.076, 1.698]
Age	-.014	.003	.986*** [.980, .991]
Number of symptoms for DSM-5 SUD criteria endorsed at intake	.116	.007	1.123*** [1.107, 1.139]
Number of days poor physical or mental health limited daily activities in the 30 days before	.018	.003	1.018*** [1.013, 1.023]
Number of prior episodes of treatment in lifetime	.047	.009	1.048*** [1.031, 1.066]
Constant	-1.956	.161	.141***
Model χ^2 =	511.271***		
Pseudo R^2 =	.104		
n =	6,954a		

a—204 cases were excluded because they had missing values on at least one of the variables in the model.

*p < .05, ***p < .001.

Department of Corrections Substance Abuse Programs Clients in CJKTOS

In the binomial logistic regression model of meeting study criteria for SUD (mild, moderate, or severe, per DSM-5 criteria) regressed on intake variables, four variables were associated with the odds of having mild, moderate or severe SUD at follow-up (see Table 16).

- The odds of meeting criteria for SUD at follow-up increased with increasing number of SUD symptoms endorsed at intake. Odds were also higher among participants who reported at least one prior SUD treatment episode (inpatient or outpatient) before intake to corrections-based SUD treatment.

- However, odds of meeting criteria for SUD at follow-up were lower among participants who were older, as well as those who indicated at intake that they believed they had moderately or very good chances of remaining abstinent after treatment.

- Gender and race/ethnicity were not significantly associated with the odds of having mild, moderate or severe SUD at follow-up.

TABLE 16. BINOMIAL LOGISTIC REGRESSION OF MEETING STUDY CRITERIA FOR MILD, MODERATE OR SEVERE SUD IN THE 12 MONTHS BEFORE FOLLOW-UP FOR CJKTOS CLIENTS

Predictor variables	**b**	**SE**	**Odds ratio [95% CI]**
Gender [1=male, 0 = female]	.394	.242	1.483 [0.923, 2.384]
Race/ethnicity (1=White, 0 = Minority]	-.317	.296	0.729 [0.408, 1.302]
Age	-.040	.013	0.961*** [0.938, 0.985]
Number of symptoms for DSM-5 SUD criteria endorsed at intake	.070	.035	1.072* [1.000, 1.149]
Ever attended SUD treatment prior to current episode [1 = Yes, 0 = No]	.643	.251	1.901** [1.163, 3.108]
Moderately or very good chances of remaining abstinent after treatment	-.555	.240	0.574* [0.359, 0.918]
Constant	.132	.653	1.141
Model χ^2 =	34.52***		
Pseudo R^2 =	.058		
n =	456[a]		

a—DSM-5 SUD items were added to the follow-up survey in September 2019, resulting in N=457 cases for with valid responses to SUD questions at follow-up. One case was missing SUD criteria information from intake.

*p < .05, **p < .01, ***p < .001.

Number of Positive Dimensions of Recovery at Follow-up

Recovery encompasses multiple dimensions of individuals' lives and functioning. A multidimensional recovery measure was developed for the client-level outcome evaluation data to examine changes in positive dimensions of recovery from intake to follow-up. The components of the multidimensional recovery for RCOS and KTOS are listed in Table 17. The components of multidimensional recovery for CJKTOS are listed in Table 18. The maximum number of positive dimensions of recovery for RCOS and KTOS clients at intake and follow-up is 9 and for CJKTOS is 7.

TABLE 17. COMPONENTS OF MULTIDIMENSIONAL RECOVERY FOR RCOS AND KTOS

Indicator	Positive Recovery Dimensions	Negative Recovery Dimensions
Substance use disorder (SUD) symptoms	No substance use disorder (SUD)	Mild, moderate or severe substance use disorder (SUD)
Employment	Employed at least part-time or in school	Unemployed (not on disability, not going to school, not a caregiver)
Homelessness	No reported homelessness	Reported homelessness
Criminal Justice System Involvement	No arrest or incarceration	Any arrest or incarceration
Suicide ideation	No suicide ideation (thoughts or attempts)	Any suicide ideation (thoughts or attempts)
Overall health	Fair to excellent overall health	Poor overall health
Recovery support	Had at least one person they could count on for recovery support	Had no one they could count on for recovery support
Self-efficacy for recovery	Perceived chances of abstaining from substances as moderately good or very good	Perceived chances of abstaining from substances as very poor, moderately poor or uncertain
Quality of life	Mid to high-level of quality of life	Low-level quality of life

TABLE 18. COMPONENTS OF MULTIDIMENSIONAL RECOVERY FOR CJKTOS

Indicator	Positive Recovery Dimensions	Negative Recovery Dimensions
Substance use disorder (SUD) symptoms	No substance use disorder (SUD)	Mild, moderate or severe substance use disorder (SUD)
Employment	Employed at least part-time or in school	Unemployed (not on disability, not going to school, not a caregiver)
Unstable housing	Stable housing	Unstable housing
Criminal Justice System Involvement	No arrest or incarceration	Any arrest or incarceration
Suicide ideation	No suicide ideation (thoughts or attempts)	Any suicide ideation (thoughts or attempts)
Recovery support	Had recent contact with someone who is supportive of recovery	Did not have contact with someone who is supportive of recovery
Self-efficacy for recovery	Perceived chances of abstaining from substances as moderately good or very good	Perceived chances of abstaining from substances as very poor, moderately poor or uncertain

Recovery Kentucky Clients in RCOS

In the OLS regression model of the number of positive dimensions of recovery at follow-up regressed on intake variables, the following variables were associated with the number of meetings attended at follow-up: race/ethnicity, age, and number of positive dimensions of recovery at intake (see Table 19).

- White individuals had greater number of positive dimensions of recovery at follow-up relative to individuals who were racial/ethnic minorities.
- As age increased the number of positive dimensions of recovery at follow-up decreased.
- With increasing number of positive dimensions of recovery at intake, the number of positive dimensions of recovery at follow-up increased.

Gender, number of days poor physical or mental health limited daily activities, and number of prior episodes of SUD treatment were not associated with the number of positive dimensions of recovery at follow-up.

TABLE 19. OLS REGRESSION OF NUMBER OF POSITIVE DIMENSIONS OF RECOVERY AT FOLLOW-UP FOR RCOS CLIENTS

Predictor variables	**b**	**SE**	**β**
Gender [1=male, 0 = female]	.020	.052	.010
Race/ethnicity (1=White, 0 = Minority]	.200	.095	.053*
Age	-.010	.003	-.090***
Number of positive dimensions of recovery at intake	.126	.018	.186***
Number of days poor physical or mental health limited daily activities in the 30 days before entering treatment	.001	.002	.016
Number of prior episodes of treatment in lifetime	-.002	.007	-.008
Constant	7.745	.170	
F =	63.685***		
Adj. R^2 =	.034		
n =	1,550[a]		

a— DSM-5 SUD items were added to the intake survey and follow-up survey in June 2015. 867 cases were excluded because they had missing values on at least one of the variables in the model: 745 cases had a missing value on at least one of the variables used to compute the number of positive dimensions of recovery at intake and an additional and 118 cases had a missing value for the number of symptoms for DSM-5 SUD criteria at follow-up, and four cases had missing values for age.

*p < .05, ***p < .001.

Community Mental Health Centers Clients in KTOS

In the OLS regression model of the number of positive dimensions of recovery at follow-up regressed on intake variables, the following variables were associated with the number of meetings attended at follow-up: gender, number of positive dimensions of recovery at intake, number of days of poor physical or mental health limited activities, and number of prior episodes of SUD treatment in lifetime (see Table 20).

- Female individuals had a greater number of positive dimensions of recovery at follow-up relative to male individuals.
- With increasing number of positive dimensions of recovery at intake, the number of positive dimensions of recovery at follow-up increased.
- As the number of days of poor physical or mental health limited daily activities at intake increased, the number of positive dimensions of recovery at follow-up decreased.
- As the number of prior episodes of SUD treatment increased, the number of positive dimensions of recovery at follow-up decreased.
- Race/ethnicity and age were not associated with the number of positive dimensions of recovery at follow-up.

TABLE 20. OLS REGRESSION OF NUMBER OF POSITIVE DIMENSIONS OF RECOVERY AT FOLLOW-UP FOR KTOS CLIENTS

Predictor variables	b	SE	β
Gender [1=male, 0 = female]	-.073	.034	-.027*
Race/ethnicity (1=White, 0 = Minority]	-.093	.060	-.019
Age	.001	.002	.010
Number of positive dimensions of recovery at intake	.322	.012	.342***
Number of days poor physical or mental health limited daily activities in the 30 days before entering treatment	-.007	.002	-.053***
Number of prior episodes of treatment in lifetime	-.016	.005	-.038**
Constant	5.817	.115	
F =	156.022***		
Adj. R^2 =	.138		
n =	5,823[a]		

a—1,335 cases were excluded because they had missing values on at least one of the variables in the model: 1,182 cases were missing the quality of life rating at intake because the item was added in July 2015; and 153 cases were missing values on other variables.

*p < .05, **p < .01, ***p < .001.

Department of Corrections Substance Abuse Programs Clients in CJKTOS

In the OLS regression model of the number of positive dimensions of recovery at follow-up regressed on intake variables, the following variables were associated with the number of meetings attended at follow-up: race/ethnicity, age, and number of positive dimensions of recovery at intake (see Table 21).

- Male participants had significantly fewer positive dimensions of recovery at follow-up relative to female participants.

- With increasing number of positive dimensions of recovery at intake, the number of positive dimensions of recovery at follow-up increased.

- A prior history of SUD treatment reported at intake was associated with a lower number of positive dimensions of recovery at follow-up.

Race/ethnicity, age, and abstinence self-efficacy were not associated with the number of positive dimensions of recovery at follow-up.

TABLE 21. OLS REGRESSION OF NUMBER OF POSITIVE DIMENSIONS OF RECOVERY AT FOLLOW-UP FOR CJKTOS CLIENTS

Predictor variables	b	Robust SE	β
Gender [1=male, 0 = female]	-.328	.120	-.128**
Race/ethnicity (1=White, 0 = Minority]	-.159	.122	-.049
Age	-.003	.005	-.027
Number of positive dimensions of recovery at intake	.233	.053	.215***
Ever attended SUD treatment prior to current episode [1 = yes, 0 = no]	-.306	.108	-.121**
Moderately or very good chances of remaining abstinent after treatment	.048	.145	.018
Constant	5.731	.300	
F =	6.11***		
Adj. R^2 =	.070		
n =	435[a]		

a— 455 cases had valid responses for all measures, in large part because DSM-5 SUD items were added to the follow-up survey in September 2019 and the large majority of participants did not have valid responses to all measures used to calculate total number of positive dimensions of recovery. An additional 20 records were excluded from analysis due to calculated values for Cook's Distance, which identified them as influential cases (accounting for both leverage and standardized residuals). Removal of influential cases (i.e., Cook's D values greater than 4/N) for each model resulted in an increased R2 value and were thus excluded from the final models. Multicollinearity was assessed using variance inflation factors, none of which were greater than 1.30. Huber-White robust standard errors were used to address heteroskedasticity of residuals.

**p < .01, ***p < .001.

Summary of Findings for Case-adjusted Outcomes at Follow-up

Clients entering different types of programs may enter with different levels of severity of SUD, comorbid conditions, and vulnerabilities and risks. Therefore, it is important to take these different levels of severity into account when examining client-level outcomes. Multivariate analysis of two key client outcomes (e.g., having symptoms consistent with a substance use disorder, and number of positive dimensions of recovery) was conducted for each study to adjust for sociodemographics and indicators of severity of illness. Tables 22 and 23 summarize the statistically significant predictor variables in the multivariate analysis models.

In all three outcome evaluation datasets, prior treatment episodes were positively associated with the odds of having a mild, moderate, or severe SUD (vs. none) at follow-

up. In KTOS and CJKTOS, the number of symptoms of SUD at intake were also positively associated with having a mild, moderate, or severe SUD (vs. none) at follow-up. In KTOS, all the include demographics were associated with having a mild, moderate, or severe SUD at follow-up.

Having more positive dimensions of multidimensional recovery at follow-up was significantly greater for individuals with a higher number of positive dimensions of recovery at intake, greater for women in KTOS and CJKTOS, and lower for individuals who had prior episodes of SUD in KTOS and CJKTOS. Older RCOS clients had greater positive dimensions of recovery at follow-up.

TABLE 22. SUMMARY OF STATISTICALLY SIGNIFICANT FINDINGS FOR MULTIVARIATE MODELS FOR HAVING A MILD, MODERATE, OR SEVERE SUD (VS. NONE) AT FOLLOW-UP

Predictor variables	**RCOS**	**KTOS**	**CJKTOS**
Gender	n.s.	*	n.s.
Race/ethnicity	n.s.	*	n.s.
Age	n.s.	***	***
Number of symptoms of SUD criteria at intake	n.s.	***	*
Number of days of limited activities due to health	n.s.	***	XX
Number of prior episodes of treatment in lifetime	*	***	XX
Ever attended SUD treatment prior to current episode [Y/N]	XX	XX	**
Self-efficacy for abstinence	XX	XX	*

Note. n.s. – non-significant; * --statistically significant at p < .05; ** --statistically significant at p < .01; *** --statistically significant at p < .001; XX – variable not included in the model.

TABLE 23. SUMMARY OF STATISTICALLY SIGNIFICANT FINDINGS FOR MULTIVARIATE MODELS FOR NUMBER OF POSITIVE DIMENSIONS OF RECOVERY AT FOLLOW-UP

Predictor variables	**RCOS**	**KTOS**	**CJKTOS**
Gender	n.s.	*	**
Race/ethnicity	*	n.s.	n.s.
Age	***	n.s.	n.s.
Number of positive dimensions of recovery at intake	***	***	***
Number of days of limited activities due to health	n.s.	***	XX
Number of prior episodes of treatment in lifetime	n.s.	**	XX
Ever attended SUD treatment prior to current episode [Y/N]	XX	XX	**
Self-efficacy for abstinence	XX	XX	n.s.

Note. n.s. – non-significant; * --statistically significant at p < .05; ** --statistically significant at p < .01; *** --statistically significant at p < .001; XX – variable not included in the model.

Study Limitations

The Performance Indicator Project has several limitations that must be considered to contextualize the findings. Ideally the process measures that are reported by CMHCs to the DBHDID annually would have been included as a data source, specifically for the Profiles of Performance Indicators for each CMHC (see Appendix B). However, UK CDAR was unable to access the data for this report.

The remaining limitations are with the data from the three client-level outcome evaluations. First, because there is no appropriate group of substance-using individuals who would like to receive substance abuse treatment or recovery services but do not receive it to compare with the individuals who participate in the programs, one cannot attribute all changes from intake to follow-up to the programs. Second, data included in this report were self-reported by clients. There is reason to question the validity and reliability of self-reported data, particularly about sensitive topics, such as illegal behavior and stigmatizing issues such as mental health and substance use. However, research has supported findings about the reliability and accuracy of individuals' reports of their substance use (Del Boca & Noll, 2000; Harrison et al., 2007; Rutherford et al., 2000; Shannon et al., 2007). Earlier studies found that the context of the interview influences reliability (Babor et al., 1987). During the informed consent process for the follow-up surveys, interviewers tell participants that the research team operates independently from the community mental health centers, responses will be reported in group format and will not be identifiable at the individual level, and that the research team has a federal Certificate of Confidentiality. These assurances of confidentiality and lack of affiliation with the data collectors may minimize individuals' concern about reporting stigmatizing or illegal behavior or conditions. Third, because not all clients agree to participate in the follow-up survey, it is unclear how generalizable the findings are to the entire client population that completes an intake survey. Analysis comparing those individuals who completed a follow-up survey with those who did not complete a follow-up survey (for any reason, such as, they did not agree to be in the follow-up study, they were not selected into the follow-up sample, or they were not successfully contacted for the follow-up survey) has found few significant differences between the two groups. Fourth, in recent years, the percent of clients of SUD treatment in CMHCs who agree to be contacted for the follow-up survey in KTOS has decreased, dramatically for some CMHC regions. Decreases in the proportion of clients who participate in the outcome evaluation increases the likelihood of bias in results. Finally, there are no benchmarks established for client-level outcomes, which is an important part of performance measurement efforts to identify higher quality programs. Without a sound rationale for defining the cutoff for distinguishing better and worse outcomes, the translation of the client-level outcomes to reasonable and meaningful benchmarks is not possible. Nonetheless, the data from three multi-year client-level outcome evaluations is useful and informative.

Conclusions and Recommendations

Review of the literature on performance indicators for SUD treatment (see Appendix A) informed the secondary data analysis presented in this report, as well as the conceptual framework for the other three studies undertaken by UK CDAR in 2023 to document the barriers to SUD program entry and engagement from multiple stakeholder groups: consumers and providers. Many states' performance indicator efforts focus on access and process of SUD treatment, with less attention to client outcomes, because of the cost, lack of human resources, and difficulty of carrying out systematic evaluations (Harris et al., 2009). Thus, Kentucky's multi-year client-level outcome evaluations are a valuable resource for understanding and informing publicly-funded SUD treatment in the state.

First and foremost, consumers, providers, policy makers, and community members would like to know: How do clients fare after participating in SUD programs/treatment? Before presenting the outcomes of SUD programs, it is important to have a sense of how clients are doing as they enter the programs, to contextualize any change in symptoms, functioning, well-being, and recovery supports from the time clients entered the program to follow-up. Data from the three client-level outcome evaluations were used to answer three major questions: (1) Who are the clients seeking care from Recovery Kentucky, SUD treatment in CMHCs, and the Department of Corrections Substance Abuse Programs? (2) What do the three multi-year client-level outcome evaluations tell us about how clients are at follow-up? (3) What do clients report about the care they received in SUD programs/treatment? The data from the three outcome evaluations, along with the review of the literature on performance indicators informs recommendations for Kentucky's efforts in measuring performance indicators for SUD treatment.

Who are the clients seeking care from Recovery Kentucky, SUD treatment in CMHCs, and Substance Abuse Programs in the Department of Corrections?

Involvement with criminal justice system is mandatory for clients in the Department of Corrections SAP because of the nature of the program, and criminal justice system involvement is typical for clients in Recovery Kentucky and SUD treatment in the CMHCs. At intake (before entering the program or before being incarcerated for CJKTOS), clients reported spending more than a month out of the prior 12 months (for KTOS and CJKTOS) and more than two months out of the prior 6 months (for RCOS) incarcerated. The majority of clients are between the ages of 30 and 49 years old. Racial diversity was low, with between 82.6% and 92.1% of clients in the studies self-reporting being White, which is compared to 82.4% of Kentucky residents being White (alone) in 2020. Men are more than half of the clients. Most clients are parents. Mental health problems are reported by the majority of Recovery Kentucky clients and by sizable minorities of clients in CMHCs and SAP. Chronic pain is an issue for between one-fourth to one-third of clients. Highest level of education is lower for clients in the three outcome evaluations than in the general population of Kentucky; 87.7% of Kentucky residents (ages 25 and older) reported being a high school graduate in 2020 (U.S. Census, 2023). Economic hardship and homelessness were experienced by more than one-fourth but less than one-half of

each study sample. The majority of clients reported they had recent contact with someone who was supportive of their recovery and believed their chances of staying off substances were moderately good or very good, and a minority of clients had attended mutual help recovery group meetings before entering the program (or being incarcerated for CJKTOS).

The racial composition of SAP clients is more diverse than in Recovery Kentucky and SUD treatment in CMHCs. Four-fifths of SAP clients are male versus more than half of clients in Recovery Kentucky and SUD treatment in CMHCs. About half of RCOS and CJKTOS clients resided in metropolitan communities, whereas about half of KTOS clients lived in non-metropolitan communities. Polydrug use and severe substance use disorder (SUD) were the norm for Recovery Kentucky and SAP clients, whereas a little less than half of clients in SUD treatment in CMHCs reported polydrug use and half of clients in CMHC had symptoms of severe SUD. Other aspects of substance use showed greater risk (e.g., overdose, IDU, prior episodes of SUD treatment) for more clients in Recovery Kentucky and SAP compared to clients in CMHCs. Clients in SAP had the highest employment rate, perhaps largely due to higher percentage of male vs. female clients.

What do the three multi-year client-level outcome evaluations tell us about how clients are at follow-up?

In all three outcome evaluation studies, there were statistically significant improvements in substance use and other targeted factors (e.g., symptoms, functioning, well-being, and recovery support). Of primary concern to SUD programs/treatment is the rate of return to substance use among clients. In all three outcome evaluations, there were statistically significant as well as practically significant reductions in problem use of alcohol and use of illicit drugs. Use of two classes of drugs that are of particular importance in Kentucky are opioids and methamphetamine. In all three outcome evaluations, there were statistically significantly smaller proportions of clients reporting use of opioids and methamphetamine at follow-up than at intake.

Return to substance use is a key outcome for SUD program/treatment evaluations, but so is the severity of substance use disorder, which includes the compulsive nature of substance use, social problems resulting from substance use, risky use, and physical dependence (such as tolerance and withdrawal). In all three outcome evaluations, there were significantly more individuals with no SUD at follow-up than at intake.

Other important outcomes discussed in the literature on performance indicators were included in the three outcome evaluations: symptoms, functioning, well-being, and recovery support. Regarding symptoms, there were significant reductions in mental health problems from intake to follow-up. Regarding functioning, there were significant reductions in involvement with the criminal justice system and significant reductions in homelessness and economic hardship (for the two studies in which they were examined). For Recovery Kentucky and SAP clients, a significantly higher percentage of clients were employed at follow-up than at intake. For the two outcome evaluations that included subjective quality of life as a measure, there were statistically significant increases in clients' subjective quality of life, which the performance indicator literature frames as a component of well-being. In all three outcome evaluations, significantly more individuals

reported attending mutual help recovery meetings as well as having recent contact with someone who supported their recovery at follow-up than at intake. Even though the majority of clients at intake in all three outcome evaluations believed their chances of abstaining from substance use were moderately good or very good, there were significant increases in the percent at follow-up.

The only outcome that did not show improvement in one of the outcome evaluations (KTOS) was the percent of clients who reported having employment at follow-up. There was a statistically significant, but small, decrease in the percent of individuals who were employed at follow-up compared to intake.

Clients entering different types of programs may enter with different levels of severity of SUD, comorbid conditions, and vulnerabilities and risks. Therefore, it is important to take these different levels of severity into account when examining client-level outcomes. Multivariate analysis of two key client outcomes was conducted for each study to adjust for sociodemographics and indicators of severity of illness. In all three outcome evaluation datasets, prior treatment episodes were positively associated with the odds of having a mild, moderate, or severe SUD (vs. none) at follow-up. In KTOS and CJKTOS, the number of symptoms of SUD at intake were also positively associated with having a mild, moderate, or severe SUD (vs. none) at follow-up. In KTOS, all the included demographics were associated with having a mild, moderate, or severe SUD at follow-up.

Having more positive dimensions of multidimensional recovery at follow-up was significantly greater for individuals with a higher number of positive dimensions of recovery at intake, greater for women in KTOS and CJKTOS, and lower for individuals who had prior episodes of SUD in KTOS and CJKTOS. Older RCOS clients had higher positive dimensions of recovery at follow-up.

What do clients report about the care they received in SUD programs/ treatment?

Clients' average ratings of the overall quality of the programs were high, from a low average of 7.5 (for SAP) to a high average of 8.6 (for Recovery Kentucky), with 1 representing the worst and 10 representing the best possible. However, client satisfaction ratings in health care and mental health care are well known to be high and do not necessarily reflect negative experiences individuals may have had with their care (Williams et al., 1998). Thus, it is important for measures of care to have multiple items that ask about various aspects of the treatment/ program experience. Follow-up surveys with individuals in the three outcome evaluations asked about specific aspects of their experience in the programs. Perhaps even more importantly, the majority of clients believed the program was successful or worked well for them. The vast majority also reported they would refer a close friend/family member to the program, which reflects the high value they place on the program. Moreover, individuals in all three outcome evaluations gave high average ratings for items about being treated with respect, good communication between staff and clients, and the perceived effectiveness of the program for them. Participants in RCOS and KTOS also gave high average ratings for shared decision-making and the quality of the therapeutic alliance; participants in CJKTOS were

not asked questions about shared decision-making and the therapeutic alliance. A more focused analysis of individuals who gave lower ratings of the care they received in the SUD programs, along with their outcomes and correlates, could provide valuable information to programs about clients who have barriers to staying engaged in treatment/recovery programs.

Assurances of confidentiality were made to participants when they agreed to be contacted for the follow-up survey and again when they were contacted to complete the follow-up survey in the informed consent process. Staff persons on the UK CDAR research team asked clients these items and not staff from the SUD programs. Participants were informed that their individual responses about the program would not be shared with the program.

It is important to note that for two of the outcome evaluations (RCOS and KTOS), individuals who completed treatment and individuals who did not complete treatment/programs were included in the follow-up sample. Having said that, in RCOS intake interviews were conducted with clients in Recovery Kentucky programs once they finished the first two phases and entered Phase 1, the longest phase of the program. Thus, the high average ratings of the quality of treatment/recovery programs are based on a heterogeneous group of individuals who completed programs and those who did not for RCOS and KTOS. For CJKTOS, eligibility criteria for being included in the follow-up sample included that clients had to have completed SAP.

Summary of secondary data analysis of three client-level outcome evaluations

In summary, findings from the three multi-year client-level outcome evaluations show significant and meaningful positive improvements in the lives of individuals who participate in publicly-funded SUD treatment/programs in Recovery Kentucky, community mental health centers, and Department of Corrections SAP. Positive changes in clients' lives in a variety of areas including decreased substance use, improved mental health, decreased involvement in the criminal justice system, improved living circumstances, recovery supports, and subjective quality of life at follow-up.

One of the advantages of having annual outcome evaluations is it allows for examination of changes in client characteristics and outcomes over time. Several trend graphs are presented in this report to reflect the year-to-year changes or stability in most of the factors.

The outcomes collected in the three outcome evaluations map well onto the outcomes considered important in the performance measurement literature: return to substance use, symptoms, functioning, recovery supports, and well-being. Thus, an important question is: how can this information be capitalized for performance measurement efforts? In other words, how can this information be made more useful to consumers, providers, policymakers

Recommendations for Kentucky's efforts in measuring performance indicators for SUD treatment

Kentucky is in an excellent position to leverage data from existing client-level outcome evaluations that are conducted annually (RCOS, KTOS, and CJKTOS) and performance indicator data collected by community mental health centers that are reported to the Kentucky Department of Behavioral Health, Developmental and Intellectual Disabilities (DBHDID) annually. Building on these existing sources with other data sources, such as claims data and provider surveys, may deepen our understanding of the current state of publicly-funded SUD treatment and areas and processes for improvement.

The following are specific recommendations based on the literature on performance indicators for SUD treatment and the findings of the secondary data analysis of three multi-year client-level outcome evaluations:

- ***Expand*** collection of performance indicators including structure, access, process, and client feedback during treatment and at program exit,
- ***Continue collecting*** client-level outcome data, with possible expansion of outcomes,
- ***Establish*** an evidence base for meaningful and reasonable benchmarks for SUD treatment,
- ***Explore*** the impact of severity of illness, co-occurring physical and mental health conditions, and social determinants of health on client outcomes with more in-depth analysis,
- ***Incentivize*** providers' and organizations' participation in performance indicator efforts,
- ***Incentivize*** quality in programs through reporting performance indicators by program, while carefully considering possible unintended consequences,
- ***Link*** structure and process indicators to outcome data to develop evidence that SUD treatment and outcomes improve when performance indicators are used,
- ***Examine*** barriers to SUD programs systematically and regularly,
- ***Develop*** the infrastructure and processes so that performance indicator data for programs can be widely disseminated to consumers, providers, policymakers, and other interested stakeholders.

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Appendix A: Literature review on performance indicators related to SUD treatment

State of performance indicators in SUD treatment: How does Kentucky measure up?

Jennifer Cole, Ph.D. & TK Logan, Ph.D.

Background on performance indicators related to SUD treatment

Why do performance indicators matter? Beginning in the early 2000s, there has been a push for improving quality of care and greater transparency for accountability's sake in health care in general and specifically in care for substance use disorders (SUD) (Garnick et al., 2012). Systematic efforts to improve the quality of health care for mental health and substance use disorders followed in the wake of efforts to improve the quality of health care overall: *To Err is Human: Building a Safer Health System* (IOM, 2000) and *Crossing the Quality Chasm: A new Health System for the 21st Century* (Institute of Medicine [IOM], 2001). The IOM defined quality as "the degree to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (IOM, 1990, p. 21). Research has shown that there are discrepancies between the care provided and effective treatments for SUDs that have been established in the literature (IOM, 2006). In general, guidelines for clinical practice have been lacking (IOM, 2006). Federal legislation in the past two decades has increased the focus on performance measurement. First, the Mental Health Parity and Addiction Equity Act of 2008 prevented group health plans and health insurance issuers from imposing less favorable benefit limitations on SUD benefits than on medical//surgical benefits (CMS, n.d.). Then the 2010 Patient Protection and Affordable Care Act increased SUD treatment coverage to Americans and The Health Information Technology for Economic and Clinical Health Act encourages the adoption of electronic medical records and incentives for performance measurement (Garnick et al., 2012). Thus, SUD treatment has been under increasing pressure to achieve and document successful client outcomes as well as monitor the performance and quality of programs (Crevecoeur et al., 2012).

What can performance indicators be used for? Performance measurement has multiple purposes and uses. First, performance indicators provide critical feedback to providers and health care systems to inform improvements in care and to assess whether progress toward organizational goals is occurring (Conway & Clancy, 2009). For example, clinicians can use performance indicators to assess the effectiveness of service delivery and make changes accordingly. At the organization level, performance indicators can provide information about how well the organization supports effective service delivery (IOM, 2015).

Second, performance indicators provide accountability by providing consumers and payers with information on how providers are delivering services to client populations and communities (McLellan et al., 2007). Public reporting systems, provider profiling, pay-for-

performance, value-based payment, and performance-based contracting are mechanisms through which performance indicators are used for accountability (IOM, 2015). Consumer groups have advocated for access to performance indicators that their members and the public can use to select providers (Hermann & Palmer, 2002). Payers use performance indicators for financial and other kinds of incentive programs and for decision-making about provider networks (ASAM, 2014; Garnick et al., 2017). As an aside, the rationale for performance-based contracting is that organizations will respond rationally to incentives; in other words, the assumption is that if organizations are offered incentives for meeting specified performance levels (targets), organizations' performance will improve with regard to the targets. Yet, surprisingly little research has been conducted to evaluate if performance-based contracting yields the improvements in care that are hypothesized to occur (Garnick et al., 2017; Reif et al., 2021). Furthermore, the research that has been conducted, largely in the public sector, has been mixed, suggesting sometimes performance-based contracting results in improvements in care and sometimes it does not (Garner et al., 2012; Garnick et al., 2017; Haley, Dugosh, & Lynch, 2011; Hodgkin et al., 2020; McLellan, Kemp, Brooks, & Carise, 2008; Reif et al., 2021; Stewart et al., 2013; Stewart, Lareef, Hadley, & Mandell, 2017; Stewart et al., 2018; Vandrey et al., 2011).

What are particular challenges for performance indicators in behavioral health care? Building the infrastructure for measuring quality in behavioral health in general, and specifically in substance use disorder treatment, and developing the measures has lagged behind performance measurement in other service areas of the health care system (IOM, 2006; Pincus et al., 2016; Reif et al., 2021). For example, only 18% of reports on performance indicators in mental health and substance use disorder (SUD) systems published in 2005 to 2015 concerned services for substance use disorders (Urbanoski & Inglis, 2019). In 2014, only 5 of the 651 indicators endorsed by the National Quality Forum (NQF), a not-for-profit organization that works to catalyze improvements in healthcare, were related to substance use disorder (SUD) (Watkins et al., 2015). In the Spring 2022 cycle of NQF's review of behavioral health indicators, 9 substance use indicators were in the behavioral health and substance use portfolio: 4 of which were related to opioid use, one related to screening for risky alcohol use, three continuity of care measures, one about initiation and engagement of SUD treatment, and one for follow-up after emergency department visits for substance use (National Quality Forum, 2023). Looking at trends in indicators of high-quality addiction treatment, using N-SSATS data from 2007-2017 (Mark et al., 2020), N-SSATS data capture 5 of the 8 characteristics of higher quality treatment described by NIDA, NIAAA, and SAMHSA. These indicators are limited to process indicators (i.e., what is offered to clients) as opposed to structure, outcome, or client perceptions of care

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Understanding terminology

Performance indicators (also known as performance measures, quality indicators, system performance) (Urbanoski & Inglis, 2019) are "the methods or instruments used to evaluate the extent to which health care practitioners' actions conform to practice guidelines, medical review criteria, or standards of quality" (Garnick et al., 2006, p. 19).

Not only does behavioral health care share the quality problems with health care generally, but there are distinct problems stemming from greater stigma, the need for greater linkages among multiple organizations and systems, a more educationally diverse workplace, more compelled participation (coercion) of patients in participating in SUD treatment, and a different health care market place (IOM, 2006; Watkins et al., 2015). Furthermore, the lack of universal screening renders detection and subsequent treatment inconsistent across settings (Watkins et al., 2015), and because the number of individuals with positive screenings is the denominator for a number of performance indicators, bias in measurement and interpretation is more likely. Thus, it is important to examine efforts to develop and use performance indicators to understand the current state of research, practice, and policy efforts to evaluate and improve the quality of care for SUD programs/ treatment.

What are criteria for good performance indicators? Before examining the state of the research on performance indicators in SUD treatment, it is worthwhile to consider criteria for good performance indicators. Table A.1 presents the 9 criteria identified for good performance indicators in mental health care by Glover and Kamis-Gould (1996). The first several criteria pertain to conceptual clarity and utility of the measures, such as measuring what one states one is measuring. One criterion focuses on the feasibility of gathering and reporting measures (i.e., data are derived from available management information system), while the last several criteria focus on factors related to the utility and clarity of interpreting the data related to quality indicators. Including perspectives from multiple stakeholders, including consumers, is essential to developing performance indicators (IOM, 2015). In other words, the "actionability" of performance indicators is important, because if an indicator yields results that are not easily understood and do not have implications for service delivery, it is not serving a purpose (Hermann & Palmer, 2002).

TABLE A.1. CRITERIA FOR GOOD PERFORMANCE INDICATORS

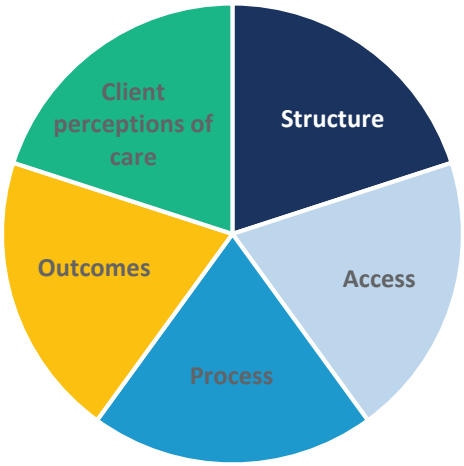
Criteria	Aspect of measurement
1. Conceptual clarity	Conceptual grounding
2. Clear link to an organizational goal	
3. Operationally defined, reliable and valid measures	
4. Derived when possible from available management information systems	Feasibility
5. Useful for interpretation (proportions and ratios, not raw numbers	Utility of measures in interpretation
6. Desired direction for performance is clear	
7. Indicators are suitable for comparison (i.e., risk adjusted when necessary)	
8. Sufficiently universal for comparison with other services	
9. Decision rules for establishing high and low performance providers and organizations	

A brief overview of the predominant framework developed for understanding performance measurement in SUD treatment is presented below.

What are the domains for performance indicators applied to SUD treatment? Donabedian (1980) presented the original framework that is most often cited within the literature on

performance indicators which included the concepts of structure, process, and outcome (Berwick & Fox, 2016). Donabedian's framework was developed to measure quality of medical care. When the Washington Circle began its efforts to develop performance indicators for SUD treatment, they adopted Donabedian's framework. Over time, it has become apparent that missing from this work was the emphasis on patient-centeredness and the impact of digital information technology (Berwick & Fox, 2016). Therefore, researchers have further developed the categories of performance indicators within Donabedian's framework to include: structure, process, access, outcome, and client experience (Garnick et al., 2006; see Figure A.1). Examples of each are presented in Table A.2.

FIGURE A.1. TYPES OF PERFORMANCE INDICATORS FOR SUD TREATMENT



Source: Garnick, D.W., Horgan, C.M., & Chalk, M. (2006). Performance measures for alcohol and other drug services. *Alcohol Research & Health, 29*(1), 19-26.

Table A.2 presents definitions and examples for each of the major domains of this performance indicator framework shown in Figure A.1. In a scoping review of the literature on performance measurement in mental health and substance use disorder (SUD) treatment, Urbanoski and Inglis (2019) noted that there are a finite number of ways of measuring performance; thus, there is substantial overlap and convergence in domains across frameworks.

1. *Structure indicators* can only capture capacity for care; they are not capable of determining if actual care takes place or the quality of that care (IOM, 2015). They "typically include features related to the presence of policies and procedures, personnel, physical plant, and information technology capacity and functionality" (IOM, 2015, p. 96). They are often used in contracts between health care plans and managed behavioral healthcare organizations (Garnick et al., 2012). Furthermore, in most performance measurement efforts, structure indicators are less commonly included than process and outcome indicators.

2. *Access indicators*, also called identification indicators measure the gap between the number of individuals in need of treatment and the number of who actually access services (Garnick et al, 2019).

3. *Process indicators* are used to assess how services provided to a client are in line with recommendations for clinical practices (Garnick et al., 2006). They are typically calculated as rates with the denominator defining a population of interest and the numerator defining the subgroup receiving specific services. The rationale behind process indicators is that providing the recommended services will result in better outcomes (Garnick et al., 2006). Process indicators are the most commonly used because they are aspects the care system has the most control over and because these indicators typically rely on administrative claims data. Using existing data is appealing due to the ease of accessing these indicators (Henderson et al., 2014; McLellan et al., 2007; Patel et al., 2015; Urbanoski & Inglis, 2019). However, much of the existing claims data provides information that is suboptimal for performance measurement primarily because claims data was created for the purpose of payment, not tracking the quality of services delivered (IOM, 2015). Furthermore, there is a growing push for performance measurement to focus more on outcome indicators (IOM, 2015).

4. *Outcome indicators* evaluate the client's health after receiving services and interventions. They are generally the most salient indicators for clients (ASAM, 2014). Data collected about or from clients at discharge or at a follow-up period after exiting treatment are the most common treatment outcomes in the literature. However, an example of an underused clinical practice that can be leveraged into performance outcome indicators is measurement-based care, or patient-reported outcomes (PROs), which is "the systematic evaluation of client symptoms before or during each clinical encounter to inform behavioral health treatment" (Lewis et al., 2019). In addition to the purported benefits of measurement-based care to clients such as involving them in their treatment plan, and to practitioners, such as alerting them to lack of progress, organizations can aggregate data to measure quality improvement efforts (i.e., performance indicators) (Lewis et al., 2019). If the PRO are not built into the electronic health record, the personnel time needed to make the data available for aggregation would be significant. Even if the PRO are integrated into the electronic health record, processes must be developed and implemented to make the information available in aggregate for the performance indicator.

The IOM committee stated that recovery (from a mental or substance use disorder) is a more meaningful objective and domain than solely abstaining/reducing substance use or a reduction in target symptoms. Recovery is "a process of change through which individuals improve their health and wellness, live self-directed lives, and strive to reach their full potential" (SAMHSA, 2015, p. 3). For substance use disorders, outcomes extend beyond reductions in substance use, including improvements in physical and mental health, improvements in functional status (such as carrying out activities/tasks that are important for independent living and crucial to the fulfillment of relevant roles), reductions in threats to public health and safety, overall quality of life, and recovery outcomes (ASAM, 2014; IOM, 2015; McLellan et al., 2005). The IOM committee conceptualized outcomes as fitting into three categories: *target symptoms* (e.g., depression, anxiety), *functional status* (performance on daily living tasks, participation in work/school, maintaining relationships, and community involvement) and *well-being* (life satisfaction, quality of life, recovery, self-determination, and client perceptions of care). Therefore, measurement of treatment outcomes would benefit from measuring

these wide-ranging aspects of clients' lives before and after treatment. However, current performance measurement efforts largely omit these client-level outcomes of multiple dimensions of clients' functioning and well-being because of the infeasibility of collecting these data (ASAM, 2014).

Some performance measurement efforts include service utilization as outcome indicators. For example, ASAM (2014) selected one outcome indicator, and it was service utilization based, inpatient/residential readmission for all causes. Specifically, this indicator calculates the number of individuals admitted for any cause to any inpatient or residential facility within 90 days after initial residential/inpatient SUD treatment out of the number of individuals receiving residential/inpatient SUD treatment within the past year. In other words, in the performance measurement of SUD treatment, some outcome indicators do not conform to the typical definition for outcomes: "client's health after receiving services and interventions."

5. *Client Perceptions of Care* measures gather clients' assessment of specific aspects of care they received, including access to care, shared decision making, communication, respect, willingness to recommend to others and overall satisfaction with services (IOM, 2015). These measures go beyond one-item measures of satisfaction with treatment. Increasingly, there are calls to include clients' perceptions of care with the structures and processes as well as self-reported outcomes (Kilbourne et al., 2018).

TABLE A.2. DEFINITIONS AND EXAMPLES OF DOMAINS OF PERFORMANCE INDICATORS FOR SUD TREATMENT

	Definition	Examples from the literature	Possible Data Sources
Structure	Features of an organization that determine its capacity to provide care. They reflect the conditions in which providers care for clients (ASAM, 2014) Measures of management practices that are associated with better treatment processes is an example of a structure measure (Garnick et al., 2012).	1. The number of certified/ licensed providers.....	1. Provider survey
		2. Ratio of treatment providers to clients	2. Provider survey
		3. Program uses electronic medical records (EMR).....	3. Provider survey
		4. Collecting and reporting clients' perceptions of care using standardized instruments	4. Provider survey
		5. Number of providers that can prescribe and monitor medications	5. Provider survey

TABLE A.2. DEFINITIONS AND EXAMPLES OF DOMAINS OF PERFORMANCE INDICATORS FOR SUD TREATMENT(CONT.)

	Definition	Examples from the literature	Possible Data Sources
Access	The extent to which a person who needs services is able to receive services (Garnick et al., 2019).	1. (Initiation) Proportion of individuals with an SUD who receive treatment	1. Claims data
		2. Penetration rate.....	2. Claims data and population-based data (e.g., NSDUH rates)
		3. Wait time for treatment.....	3. Secret shopper
Process	"assess how well a health care service provided to a patient, or on a patient's behalf, adheres to recommendations for clinical practice" (Garnick et al., 2006, p. 20)	1. (Engagement) Percent of admissions with at least 90 days of treatment retention ...	1. Administrative/ claims data (e.g., TEDS)
		2. (Engagement) Percent of admissions with 3- 6 visits in first month	2. Administrative/ claims data (e.g., TEDS)
		3. (Engagement) Percent of admissions with 4 or more services within 30 days of first service	3. Administrative/ claims data (e.g., TEDS)
		4. Percent of clients who left treatment against medical advice (i.e., dropout).....	4. Administrative/ claims data (e.g., TEDS)
		5. Program provides evidence-based therapies.....	5. Provider survey
		6. Program provides various types of recovery support services.....	6. Provider survey
		7. MOUD medication to patients	7. Administrative/ claims data (e.g., TEDS)

TABLE A.2. DEFINITIONS AND EXAMPLES OF DOMAINS OF PERFORMANCE INDICATORS FOR SUD TREATMENT(CONT.)

	Definition	Examples from the literature	Possible Data Sources
Outcome	"used to evaluate the state of a patient's health resulting from the health care services and interventions received." (Garnick et al., 2006, p. 20) "the changes in patients' symptoms, behavior, and function that can reasonably be attributed to the treatment" (McLellan et al., 2007, p. 332)	Most commonly included in frameworks and are client-level reports of:	
		1. Resource utilization (resources outside the treatment setting).....	1. Claims data
		2. Substance use (return to use)	2. Client-reported or clinician-administered scales
		3. Target symptoms (mental health, SUD).....	3. Client-reported or clinician-administered scales
		4. Functional status: "performance of activities and tasks associated with current life roles" (IOM, 2015, p. 115)..	4. Client-reported or clinician-administered scales
		Less commonly included:	
		5. Social relationships (such as the social scale of the Outcome Rating Scale)	5. Client reported scale or survey
		6. Quality of life ratings	6. Client reported scale or survey
		7. Recovery supports (Urbanoski & Inglis, 2019).....	7. Client reported scale or survey
Client Experience	Aggregated from clients' reports about their observations of and perceptions of SUD treatment Quality measures based on client-reported outcomes "typically define a specific population at risk, a time period for observation, and an expected change or improvement in outcome score" (IOM, 2015, p. 117)	1. Client satisfaction	1. Client survey
		2. Client perceptions of care (access to care, shared decision making, communication, respect, therapeutic alliance, recommendation to others, overall rating of quality [IOM, 2015]).....	2. Client survey

The most widely used performance indicators in SUD treatment focus on treatment engagement: initiation of SUD treatment and engagement (Garnick et al., 2017). These indicators are included in the NCQA HEDIS measures, the National Quality Forum, Centers for Medicare and Medicaid Services, and the U.S. Department of Veterans Affairs.

Several organizations are involved in the development of SUD performance indicators including the National Quality Forum (NQF), the National Committee for Quality Assurance (NCQA), the Joint Commission (TJC), the federal Agency for Healthcare Research and Quality (AHRQ), the AMA's Physician Consortium for Performance Improvement (PCPI), the Washington Circle, and Shatterproof (Agency for Healthcare Research and Quality, 2018; American Medical Association, 2015; American Society of Addiction Medicine, 2014; Garnick et al., 2011; Hodgkin et al., 2020; National Committee for Quality Assurance, 2023; Shatterproof, 2019)

What are some real-world adaptations and examples of SUD performance indicators?
Discussion of performance measurement in SUD treatment has been underway in federal and state agencies as well as nonprofit agencies since the early 2000s. Below are several examples of performance measurement in SUD treatment, beginning with the Washington Circle, followed by a few examples from federal agencies: the National Committee for Quality Assurance, Centers for Medicare & Medicaid Services (CMS), and a non-profit that developed and pilot tested performance indicators that are currently being used in 10 states. Additionally, we briefly overview the performance indicators that the Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities (DBHDID) uses in performance contracting with CMHCs.

The *Washington Circle (WC)* collaborative effort was the first attempt in the U.S. to develop performance indicators related to SUD treatment. The WC began in 1998 when the Substance Abuse and Mental Health Services Administration (SAMHSA) convened a meeting to develop performance indicators focused on the quantity and timing of treatment services for SUD (Garnick et al., 2009; Garnick et al., 2011). Because the Washington Circle were the first performance indicators for SUD treatment they strongly influenced subsequent PI efforts. The WC performance indicators (see Table A.3), which are focused on process, were designed to measure a set of minimally acceptable services in the early stages of treatment for SUD (Garnick et al., 2011). The three performance indicators (e.g., identification, initiation, and engagement) were pilot tested on six private health plans (i.e., Managed Care Organizations). The three performance indicators are presented in Table 3 along with information about the adaptation of the three performance indicators by five states (NC, OK, MA, CT, and NY) that pilot tested their application for publicly-funded treatment beginning in 2004 (Garnick et al., 2011). When the first WC performance indicators were developed, public sector organizations provided the largest share of specialty treatment for SUDs, so applying performance indicators to the public sector was important (Garnick et al., 2011).

TABLE A.3. WASHINGTON CIRCLE (WC) PERFORMANCE INDICATORS FOR SUD TREATMENT PILOT TESTED WITH PRIVATE HEALTH CARE PLANS AND ADAPTATION TO PUBLIC SECTOR AGENCIES

	Private health care MCOs[1]		Public sector agencies[2]
	Performance Indicators	**Range of values from pilot testing of 6 MCOs**	**Performance Indicators**
Identification.....	The number of individuals receiving SUD treatment/ Total adult members of health care plan	0.72% to 1.45%	Not feasible because public agencies do not have an enrolled population
Initiation.....	Adults with inpatient SUD admission or an index outpatient index claim and additional SUD claim within 14 days / Number of adult members with an index SUD treatment claim	26% to 46%	Outpatient (OP) initiation: Percent of individuals who have an index OP service and a second SA service within 14 days Parallel measure for intensive OP
Engagement.....	Adult members with >= 2 SUD services within 30 days after initiation	14% to 29%	The percent of individuals who initiated OP and received 2 additional services within 30 days after initiation Parallel measure for intensive OP
Continuity.....	Not included		Developed during the pilot testing of public sector data Continuity of treatment after: residential treatment, inpatient hospital stays, positive treatment, and detoxification

Sources: 1--Garnick, D.W., Lee, M.T., Chalk, M., Gastfriend, D., Horgan, C.M., McCorry, F., McLellan, A.T., & Merrick, E.L. (2002). Establishing the feasibility of performance measures for alcohol and other drugs. Journal of Substance Abuse Treatment, 23(4), 375-385. 2—Garnick, D.W., Lee, M.T., Horgan, C., Acevedo, A., Botticelli, M., Clark, S., Davis, S., Gallati, R., Haberlin, K., Hanchett, A., Lambert, D., Leeper, T., Siemianowski, J., & Tikoo, M. (2011). Lessons from five states: Public sector use of the Washington Circle performance measures. Journal of Substance Abuse Treatment, 40, 241-254.

The Workgroup's effort acknowledged that it was necessary to adapt performance indicators to a state's specific data infrastructure, reporting capabilities, and the ways in which the WC indicators are used by each state (such as pay-for-performance, performance targets in contracts, reporting to the public). For example, the Workgroup deemed the indicator for identification was not feasible in public-sector organizations because there was no defensible way to calculate the eligible population, which contrasted with private health plans that have a delimited enrolled population. However, states, such as North Carolina originally and others since (such as Kentucky) have estimated levels of service penetration using estimates of numbers of individuals with SUDs in their states from the National Survey on Drug Use & Health with Medicaid and state claims data to estimate the service penetration rate (Garnick et al., 2011). Adaptation to each state and ongoing evaluation of performance measurement are required in the face of changing data processes, improvements in treatment approaches, and

understanding of how performance indicators are associated with treatment outcomes increases.

> An example of a service penetration rate used by the Division of Behavioral Health within the Kentucky Department of Behavioral Health, Developmental and Intellectual Disabilities is calculated from the number of clients 12 years and older with a SUD diagnosis receiving services divided by the estimated number of individuals (12 years and older) estimated to need treatment in the state by the National Survey on Drug Use and Health (NSDUH). In FY 2013, the penetration for the state was 6.75% (Cole & Walker, 2014).

The *National Committee for Quality Assurance (NCQA)* developed and manages the Healthcare Effectiveness Data and Information Set (HEDIS), which is a performance indicator tool used by more than 90% of U.S. health plans. In particular, Medicare Advantage (MA) plans and the Veterans Affairs (VA) health care system use HEDIS performance indicators to assess quality of health care (Trivedi et al., 2016). Two of the indicators pertain to SUD treatment initiation and engagement. Treatment initiation is operationalized as the percentage of adolescent and adult enrollees with a new episode of SUD treatment within 14 days of initial diagnosis, and treatment engagement is operationalized as treatment service within 30 days thereafter (after initial service) (National Committee for Quality Assurance, 2023). National results for initiation of SUD treatment and engagement of SUD treatment for adolescents and adults are presented by type of health plan (e.g., commercial HMO, commercial PPO, Medicaid HMO, Medicare HMO, and Medicare PPO) and by type of SUD (e.g., alcohol, opioid, and other drug use disorder) and by year (e.g., 2017 – 2021) (https://www.ncqa.org/hedis/measures/initiation-and-engagement-of-alcohol-and-other-drug-abuse-or-dependence-treatment/).

The *Centers for Medicare & Medicaid Services (CMS)* have several performance indicators that focus on SUD. Specifically, the 2022 Child Core Set includes one SUD indicator, the 2022 Adult Core Set includes five SUD indicators, and the 2022 Health Home Core Set includes three SUD indicators (CMS, 2022). Two rates are calculated for, Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment, from administrative data in the Adult Core Set. In addition to the two total rates, rates are stratified by three diagnosis cohorts: (1) alcohol use disorder, (2) opioid use disorder, and (3) other drug use disorders. Follow-up after emergency department visit for SUD indicators "the percentage of beneficiaries with a principal diagnosis of AOD abuse or dependence who had a follow-up visit with a corresponding principal diagnosis for AOD abuse or dependence" (p. 3). The indicator includes two rates for different timeframes for follow-up: within 30 days of the ED visit, and within 7 days of the ED visit. Use of pharmacotherapy for OUD is an indicator of "the percentage of beneficiaries who filled a prescription for or were administered or dispensed a Food and Drug Administration (FDA)-approved medication for the disorder during the measurement year" (CMS, 2022, p. 3). The indicator includes a total rate as well as separate rates for four drug products: (1) buprenorphine, (2) oral naltrexone, (3) long-activing, injectable naltrexone, and (4) methadone. Two other performance indicators provide information about opioid misuse: (1) use of opioids at high dosage in persons without cancer, and (2) concurrent use of opioids and benzodiazepines.

A national nonprofit organization, *Shatterproof*, developed performance indicators for specialty SUD treatment Shatterproof created a Substance Use Disorder Treatment Task Force, that developed National Principles of Care (Shatterproof, 2019) as core elements of performance measurement of SUD treatment to provide to payers, consumers, providers, referral sources, and state licensors (Shatterproof, 2019). For each of the principles of care, there are a minimum of two (up to four) corresponding performance indicators, with data sources from claims data, provider surveys, electronic medical records, secret shopper studies, and patient experience feedback (as provided via CAHPS mental health care surveys). In addition to the eight principles of care, the Shatterproof performance indicators include three client-level outcomes: readmission to a higher level of care, client's self-reported degree to which they were helped by treatment, and improvements in client's functioning (Shatterproof, 2019). Pilot testing of the rating system occurred in five states in 2019-2020: Delaware, Louisiana, Massachusetts, New York, and West Virginia. The quality ratings were made available to the public on a searchable dashboard hosted by Shatterproof in 2020, which is called, Addiction Treatment Locator, Assessment, and Standards Platform (ATLAS) (https://www.treatmentatlas.org/). Ten states currently participate in ATLAS. The user can select on specific programs within a given area and choose to compare multiple programs side-by-side in a feature.

North Carolina is a rather unique example of maximizing transparency in their performance measurement with the *North Carolina Treatment Outcomes and Program Performance Systems (NC-TOPPS)*. Under a legislative mandate, North Carolina provides WC performance indicators on a quarterly basis for the state system on a website that is available for the public to use. In this way, the user (i.e., consumer) may view performance indicators for programs on the website (https://nctopps.ncdmh.net/Nctopps2). North Carolina also developed 21 process indicators, two of which are directly related to WC indicators (Garnick et al., 2011).

How does Kentucky measure performance in SUD treatment? The Kentucky Behavioral Health Planning and Advisory Council reviews the state plan for substance misuse prevention, SUD treatment and recovery services every year. The council is composed of a mix of providers, consumers, family members of consumers (KY DBHDID, 2022). Kentucky's Department for Behavioral Health, Developmental and Intellectual Disabilities (DBHDID) issues a performance indicator implementation guide each fiscal year for the contracting processes with Community Mental Health Centers (CMHCs). CMHCs can monitor their progress toward targets by reviewing monthly reports for each performance indicator (KY DBHDID, 2022). The performance indicators are categorized into six principal domains: (1) access, (2) evidence-based services, (3) quality of information, (4) engagement and retention, (5) community integration, and (6) continuity of care (KY DBHDID, 2023). The three indicators used for substance use disorder treatment are presented in Table A.4 along with client-level outcomes and client perceptions of care collected in the annual client-level outcome evaluation studies: Recovery Center Outcome Study (RCOS), Kentucky Treatment Outcome Study (KTOS), and Criminal Justice Kentucky Treatment Outcome Study (CJKTOS).

TABLE A.4. KENTUCKY DEPARTMENT FOR BEHAVIORAL HEALTH, DEVELOPMENTAL AND INTELLECTUAL DISABILITIES (DBHDID) KEY PERFORMANCE INDICATORS RELATED TO SUBSTANCE USE DISORDER TREATMENT

Domain	Performance Indicator	Target
Identification and access	The count of clients ages 12+ receiving outpatient SA treatment services / the percentage of persons ages 12+ in the region estimated to need treatment as determined by the NSDUH multiplied by the region's 2010 census population of ages 12+	Benchmark percent in SFY 2024: 7%
Treatment engagement.....	The count of mental health and substance use outpatient services provided between admission and discharge / the count of TEDS episodes that lasted 30 days or longer where the discharge date is during the monitoring period.	1. At minimum, an average of 7 services during the first 30 days of post admission for engagement 2. A minimum of an average of 3 outpatient services will be provided during the first 30 days of a TEDS episode
Treatment retention	The count of outpatient TEDS episodes which lasted 30 days or longer / the count of outpatient TEDS episodes where the discharge date is during the monitoring period.	At minimum, an average of 50% of all outpatient substance use treatment episodes will last more than 30 days
Outcomes.....	Client-level treatment outcomes from interviews with clients in Recovery Center Outcome Study (RCOS), Kentucky Treatment Outcome Study (KTOS), and Criminal Justice Kentucky Treatment Outcome Study (CJKTOS), which are conducted annually, allowing for examination of trends over time	Outcomes: 1. Substance use (return to use), *Target symptoms:* 2. Severity of SUD, 3. Mental health and physical health, *Functional status:* 4. Criminal justice system involvement, 5. Education and employment, 6. Living situation *Well-being:* 7. Quality of life 8. Recovery supports
Client Perceptions of Care	Client feedback on treatment engagement and satisfaction from RCOS, KTOS, and CJKTOS	Client perceptions of care: 1. Overall rating of quality of program 2. Access to care, 3. Shared decision making, 4. Communication, 5. Respect, 6. Therapeutic alliance, 7. Recommendation to others, 8. Perceived effectiveness of program

Sources: Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities. (2023). DBHDID performance indicator implementation guide: Applicable to state fiscal year 2024 contracts. Frankfort, KY: Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities. Accessed from https://dbhdid.ky.gov/cmhc/documents/pi/current/Guide.pdf?t=10435208152021.

Cole, J., Logan, T., White, A., & Scrivner, A. (2023). Adult Kentucky Treatment Outcome Study 2023 Annual Report. Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research. Retrieved from https://cdar.uky.edu/bhos/KTOS_2023_Annual-Report.pdf.

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Tillson, M., Winston, E.M., & Staton, M. (2022). Criminal Justice Kentucky Treatment Outcome Study (CJKTOS) FY 2021. Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research. Retrieved from https://cdar.uky.edu/cjktos/Downloads/CJKTOS_FY2021_Report_FINAL.pdf.

What are research gaps and priorities for improving performance indicators in SUD treatment? Review of existing literature on performance indicators for SUD treatment reveals that the field has made substantive progress the past two decades; nonetheless, important gaps in the research and priorities for improvement of performance indicators are evident. The major categories of gaps and areas of improvements are: (1) Validity of performance indicators, (2) Underdevelopment and underuse of some domains or aspects of some domains, (3) Increasing the interpretability of performance indicators, (4) Investigating implementation of performance indicators, (5) Improving participation in performance measurement efforts, (6) Sustainability of performance measurement efforts, and (7) The need for continual evaluation and adaptation of performance measurement efforts.

Issues of validity of performance indicators

Lack of guidelines to inform development of meaningful performance indicators. The American Society of Addiction Medicine (ASAM, 2014) noted a somewhat alarming problem with developing performance indicators for SUD treatment: a paucity of guideline-based research to base meaningful performance indicators on in the SUD treatment field. Furthermore, ASAM (2014) pointed out a notable lack of research on evaluation of what treatment organizations are providing clients versus what they claim to provide to clients. Without more guidelines for the provision of SUD treatment services, there is nothing around which to build additional performance indicators.

Less evidence that performance indicators are measuring what they are said to measure. Of the performance indicators that systems have adopted, most systems have provided some evidence for content validity of the indicators, but reliability and criterion/construct validity are assessed rarely or established (Harris, Humphreys et al., 2009; Heath, Hippisley-Cox, & Smeeth, 2007; Henderson et al., 2014). Without evidence for criterion/construct validity of performance indicators, there is uncertainty about how well the performance indicators measure what they purportedly measure.

Less evidence that domains are associated with one another in meaningful ways. There is a lack of evidence linking domains to one another (Lauriks et al., 2012; Urbanoski & Inglis, 2019). Why this matters is process indicators matter because they are hypothesized to provide information on how to improve the quality of care, which ultimately will improve facility-level and client-level outcomes (Harris, Kivlahan et al., 2009). However, little research has been conducted in this area, and in the studies that have investigated the validity of process indicators to predict outcomes, evidence has been mixed (Garner et al., 2010; Garnick et al., 2012; Harris et al., 2009). For example, in an analysis of Veterans Affairs data, the continuity of care process indicator was not associated with client-level improvements in ASI alcohol and drug composite scores, even after controlling for baseline covariates (Harris, Humphreys et al., 2009). Further studies of the associations between improvements in structure and process performance indicators and improvements in clients' outcomes, with attention to how associations may differ by client subgroup, are crucial (Garnick et al., 2012).

Mixed evidence on the ability of performance indicators to discriminate high- and low-performing providers/organizations (Harris, Humphreys et al., 2009; Reif et al., 2021; Urbanoski & Inglis, 2019). Part of the issue for difficulty with distinguishing high-and low-performing providers is due to measures, such as perceptions of care, that vary more within than between providers. What could cause greater variability in clients' perceptions of care within providers than between providers? One possible explanation is the variability of the provider-client match/fit. Another plausible contributor is how performance indicators vary across client subgroups (e.g., women with children, racial minorities, gender minorities, immigrants, lower income, individuals with comorbid conditions) (Harris, Humphreys et al., 2009). In other words, how do different client subgroups fare better or worse with particular service providers/organizations? Data analysis that looks for the group effect without exploration of within-group differences may miss important variability in the effects of treatment for particular subgroups (Kilbourne et al., 2018). Process indicators, which are organization-level for the most part, do not allow for exploration of who is most likely to benefit from different aspects of care (Harris et al., 2009).

Lack of standardized methods for risk adjustment of outcomes. Client outcomes can be influenced by many factors outside the reach of treatment (e.g., personal resources, treatment history, community resources); thus, examination of client outcomes must be consider how to measure and represent the different levels of severity of illness (and resources) with which clients enter treatment, referred to as risk adjustment. Valid risk adjustment decreases the probability of the unintended consequence of rewarding programs that appear to have better outcomes, without consideration that their client population has less severe problems than other programs with client populations with different client and population characteristics (IOM, 2015; Urbanoski & Inglis, 2019). Risk adjustment is not well developed for mental and substance use disorders (IOM, 2015; Kilbourne et al., 2018). Thus, continued research on improvements in risk adjustment for process indicators is needed (Henderson et al., 2014; Hermann et al., 2007; IOM, 2015).

Selection of appropriate treatment outcomes and how to measure them is not straightforward. First, there is no recognized gold standard outcome of SUD treatment, which leads to ambiguity about the best outcomes to include in performance measurement systems and the difficulty in comparing results across studies on the process indicators that are associated with better treatment outcomes (Harris et al., 2009; IOM, 2015). For example, the National Quality Forum (NQF), a private non-profit that vets proposed measures in terms of criteria that include scientific acceptability, feasibility, utility, and importance, has not endorsed any outcome indicators for SUD treatment (Hodgkin et al., 2020). Even though abstinence from substance use is the most commonly examined treatment outcome, it is only one aspect of recovery and is modesty associated with symptom severity and functioning (Harris et al., 2009). Thus, more research on the treatment outcomes that are the most meaningful and robust predictors of recovery is needed. Furthermore, deciding on the timeframe for measuring client treatment outcomes is open to debate. Measuring outcomes at discharge from treatment, even when discharge is clearly defined (which is not always the case), will bias the indicator toward successful outcomes because the risk of relapse increases with time out of treatment (Hodgkin et al., 2020). However, the resources needed to track down and interview clients after they are

no longer involved in SUD treatment are substantial and beyond what many programs can do (Harris et al., 2009; Hodgkin et al., 2020).

Furthermore, there are questions about the source of information about clients' substance use (Hodgkin et al., 2020). Biochemical tests vs. client-reported use are the primary options, with some recommending using both (Jarvis et al., 2017). Drug tests are presumed to provide more objective information; however, the varied rates at which drugs metabolize out of the body narrows the window of "capture" considerably for substances with short half-lives (for example, hours for alcohol and cocaine) (Del Boca et al., 2000; Jaffee et al., 2008), which decreases the utility of these tests. Skepticism about the validity of self-report data on sensitive topics has prompted investigations on the concordance of self-report data and biochemical tests, such as urinalysis or blood serum analysis of drugs and alcohol. In most of these studies, the concordance or agreement is acceptable or high (Buchan et al., 2002; Denis et al., 2012; Rowe et al., 2018; Hjorthoj et al., 2012). In several studies, when there were discrepant results, the majority of differences involved self-reported substance use that was not detected with urinalysis or blood serum analysis (Babor et al., 2000; Hilario et al., 2015; Weiss et al., 1998). Moreover, there is evidence that client-reported are more accurate than drug tests, in certain circumstances (Babor et al., 2000; Weiss et al., 1998) and are in accordance with the push toward greater use of client-reported outcomes (Hodgkin et al., 2020). Underreporting of substance use occurs less in certain conditions, such as, when self-report data are collected with the Timeline Followback (TLFB) method (Sobell & Sobell, 1992), assurances of confidentiality are made to participants, and when positive results are not associated with negative consequences (Babor et al., 2000; Del Boca et al., 2000; Weiss et al., 1998). Given that drug tests are expensive and making contact with former clients several months after they have ended their involvement in a SUD treatment program, using drug tests to report on clients' substance use has limited feasibility and utility. Beyond administrative or claims data, data collection of client-level treatment outcomes necessitates collecting data from clients after they leave treatment programs. Locating and collecting information from clients at follow-up periods is costly and resource intensive (Harris et al., 2009).

Underdevelopment of some domains or aspects of some domains in performance indicators

There is a consensus that structure measures are underdeveloped and underused (Baars et al., 2010; Garnick et al., 2012; Henderson et al., 2014; Urbanoski & Inglis, 2019). Furthermore, greater consideration and inclusion of structure inputs as it relates to equity are needed in the development and use of performance indicators to better understand barriers to treatment. The social determinants of health (such as homelessness, family support) likely have a robust influence on client outcomes; yet, this type of data is not typically available in electronic health records, administrative data, or claims data (Hodgkin et al., 2020). For example, although sex and gender are typically examined in frameworks, parental status (which has potentially important effects on treatment access for women who are pregnant or parenting) is rarely included in frameworks (Urbanoski & Inglis, 2019). Finally, IOM (2015) asserted that structure indicators should set expectations for the infrastructure needed to support measurement of outcomes and delivery of evidence-based treatment.

Specific aspects of domains are also underdeveloped in the performance measurement literature. For example, few performance indicator efforts include peer support services or family involvement in treatment (ASAM, 2014; Urbanoski & Inglis, 2019). In a small number of frameworks that incorporated provision of peer support services, the measurement was limited to a single item about the availability of peer support services, with no information collected about capacity, scope or effectiveness (Urbanoski & Inglis, 2019).

In 2012, the Washington Circle convened a meeting to focus on the research gaps in performance indicators of SUD treatment. One suggestion was to develop composite measures, such as composite outcome indicators at the client level that aggregate multiple outcomes (e.g., abstinence, housing, employment).

Increasing the interpretability of performance indicators

Establishing an evidence base for what constitutes a reasonable and meaningful benchmark is necessary, because few indicators in mental health and SUD treatment have established benchmarks (Hermann & Palmer, 2002). Often benchmarks are based on averages for indicators for population-based samples. As more performance measurement activities are carried out in a greater number of organizations, the utility and validity of provisional norms and benchmarks can be further investigated.

Investigating implementation of performance indicators

Systematic investigation of implementation of performance indicators in SUD treatment is lacking. Increasing knowledge of facilitators and barriers to implementation of performance indicators will allow for more effective solutions and strategies to improve performance measurement efforts. Collaboration with academic and technical consultants, state partners, and providers are necessary to make performance measurement efforts successful (Garnick et al., 2011); yet, research networks to test the performance indicators are limited (ASAM, 2014). Garnick and colleagues (2012) suggested that research on the implementation of performance indicators in SUD treatment begin with looking to implementation of performance indicators in healthcare, education, and other industries to learn important lessons. The authors also suggested many important areas to consider in this line of inquiry include, with the following a sampling of research questions:

- What infrastructure is required for successful implementation?
- How does inclusion of stakeholders in the development and implementation of performance measurement related to successful implementation?
- How does implementation of performance indicators impact organizational culture?
- How do consumers use publicly available information on performance indicators?
- Are incentives based on performance indicators effective in provider organization's

adopting evidence-based practices?

- What are unintended consequences of incentivizing aspects of performance?
- Are the costs of implementing performance indicators at the state and provider level offset with savings from potential improvements in quality of treatment?

Improving participation in performance measurement efforts

Participation in performance measurement has not been adopted by all eligible provider organizations. The necessary infrastructure, training, and resources to incorporate performance indicators into organizations is substantial. Some payers have instituted incentive programs, such as what the Centers for Medicare & Medicaid Services has implemented for physicians' and hospitals' participation in performance indicator data (CMS, 2014; CMS, 2018), to improve participation in performance measurement. Furthermore, developing performance measurement systems that provide real-time feedback to providers will increase the utility of the indicators to frontline workers and will likely increase the perceived benefit of participating in performance measurement, ultimately improving data collection.

Sustainability of performance measurement efforts

The development and implementation of performance measurement needs to be viewed and treated as an integral part of the care system, which ultimately requires resource allocation and commitment from individuals at all levels of the organization, including the highest levels of leadership to direct service providers and frontline staff. The importance of leadership's level of investment in developing and using performance indicators cannot be overstated. Leadership of agencies must be committed to defending allocation of resources to support performance management efforts (Garnick et al., 2011). However, successful performance measurement also requires buy-in from direct service providers, frontline staff, and consumers, who are often involved in the collection of data. If the performance indicators are seen as having little value to frontline staff or consumers, efforts will be unsuccessful and have reduced benefit (Davis et al., 2021; Kilbourne et al., 2018).

The need for continual evaluation and adaptation of performance measurement efforts

The process of performance measurement is continual as our understanding of the clinical effectiveness of interventions and practices evolves along with information and technological changes in how data are collected and analyzed. A timely review of the process of collecting, analyzing, and updating performance indicators with consideration of the developing research literature and practicalities of the systems involved will facilitate greater utility of the key performance indicators (Henderson et al., 2014). Herman and Palmer (2002) discussed the importance of assessing the predictive validity of performance indicators once they are selected and implemented to determine the meaningfulness of the performance indicators. An example of this type of research is a study that examined applying two performance indicators from HEDIS to MOUD—

engagement and retention in OUD. The findings showed that a HEDIS engagement process indicator was predictive of retention for at least 6 months in MOUD (minimally adequate retention) (Williams et al., 2022).

One particular challenge is that the scientific community and funding streams that generate evidence for performance indicators are largely disconnected from the work in quality measurement, which hampers the development and evaluation of performance indicators (Harris, Humphreys et al., 2009; Pincus et al., 2016). For example, little research has examined the impact of instituting pay-for-performance efforts on the quality of services, and the evidence for the impact is mixed (Garner et al., 2012; Garnick et al., 2017; McLellan et al., 2008; Stewart et al., 2013; Stewart et al., 2018). In fact, a review of pay-for-performance systems applied to SUD treatment noted that even though pay-for-performance systems have been implemented across the U.S., the scientific rigor of the studies that have investigated the effectiveness of these systems has been low (Stewart et al., 2018). More resources to support the development, collection, and analysis of performance indicators are needed, including continued evaluation of changes in structure and process performance indicators and their associations with client outcomes (ASAM, 2014; Harris, Humphreys et al., 2009; Henderson et al., 2014).

Recommendations for Kentucky

This review of the research literature on performance measurement in SUD treatment has identified several challenges to service providers and policymakers in planning, implementing, and improving performance measurement efforts. Reviewing the general challenges and recommendations, this section presents recommendations for the current performance measurement efforts in the context of the strengths of current efforts in Kentucky. The recommendations include:

- ***Expand*** collection of performance indicators including structure, access, process, and client feedback during treatment and at program exit,
- ***Continue collecting*** client-level outcome data, with possible expansion of outcomes,
- ***Establish*** an evidence base for meaningful and reasonable benchmarks for SUD treatment,
- ***Explore*** the impact of severity of illness, co-occurring physical and mental health conditions, and social determinants of health on client outcomes with more in-depth analysis,
- ***Incentivize*** providers' and organizations' participation in performance indicator efforts,
- ***Incentivize*** quality in programs through reporting performance indicators by program, while carefully considering possible unintended consequences,
- ***Link*** structure and process indicators to outcome data to develop evidence that SUD

treatment and outcomes improve when performance indicators are used,

- ***Examine*** barriers to SUD programs systematically and regularly,

- ***Develop*** the infrastructure and processes so that performance indicator data for programs can be widely disseminated to consumers, providers, policymakers, and other interested stakeholders.

Expand collection of performance indicators. Based on the research literature and the findings of the four projects, in addition to the performance indicators already collected, some recommended performance indicators are:

1. structure indicators (such as information about staffing, number of peer support specialists, process for tracking referrals from the criminal justice system, limits on SUD services imposed by Medicaid MCOs and insurance carriers);

2. access indicators (such as counts of number of individuals who received SUD treatment services by key demographic information including age, race/ethnicity, pregnant, non-English-speaking, veterans, etc.);

3. process indicators (such as proportion of potential clients who show up to first appointment, wait times, proportion of clients who receive transportation vouchers/ assistance, proportion of clients who end treatment by completion or transfer);

4. client perceptions of care indicators in addition to the data already gathered in the outcome evaluations (collecting client feedback in a systematic and anonymous manner during treatment and at program exit); and

5. outcomes collected by SUD programs as clients exit (such as percent of clients with no arrests since admission, percent of clients who are abstinent at program exit, percent of clients who have stable housing at program exit, percent of clients who are employed at program exit).

Data sources for performance indicators will need to include information compiled from walk-throughs, electronic health records, Medicaid claims data, client-level outcome evaluations, surveys with consumers about their perceptions of care, and periodic surveys with providers.

Continue collecting client-level outcome data. Client-level outcomes along with client perceptions of services are integral to assessing the quality of SUD treatment (IOM, 2015). Kentucky has formal treatment outcome evaluations in place to provide this information. Moreover, the client-level outcomes go beyond measuring return to use/abstinence, but also assess symptoms, functioning, quality of life, and recovery supports (Hodgkin et al., 2020; Urbanoski & Inglis, 2019). The existing client-level outcome evaluation includes data on clients' symptoms, functioning, quality of life, recovery supports, as well as a composite measure of overall recovery. Nonetheless, there may be dimensions of the domains of client-level outcomes that could be strengthened in the existing treatment outcome evaluations, which should be considered.

Establish an evidence base for meaningful and reasonable benchmarks for SUD treatment. Establishing an evidence base for what constitutes a reasonable and meaningful benchmark is necessary, because few indicators in mental health and SUD treatment have established benchmarks, particularly for client outcomes (Hermann & Palmer, 2002). Often benchmarks are based on averages for indicators for population-based samples. As more performance measurement activities are carried out in a greater number of organizations, the utility and validity of provisional norms and benchmarks can be further investigated. This is a complicated task, because of the multiple levels that influence the provision of services and the heterogeneity in client populations; thus, benchmarks that do not take this complexity and heterogeneity into consideration may result in negative unintended consequences.

Explore the impact of severity of illness, co-occurring physical and mental health conditions, and social determinants of health on client outcomes with more in-depth analysis. The multi-year client-level outcome evaluation data provides evidence that participation in publicly-funded SUD treatment/programs is associated with positive changes in a significant proportion of clients' lives. Nonetheless, the existing data can be leveraged to further examine subgroup differences in treatment outcomes: for whom, and under what circumstances, do different types of treatment yield optimal or suboptimal outcomes?

Incentivize participation in performance indicator efforts. Kentucky must ensure that incentives to provider organizations for submitting data that is used in performance measurement analysis are resulting in high levels of participation and not resulting in unintended consequences. Participation must be high and unbiased before one can confidently base practice or policy decisions on the findings. If providers do not report the data uniformly, the conclusions one draws from the data may be biased.

Incentivize quality in programs through reporting performance indicators by program, while carefully considering possible unintended consequences. This recommendation depends on the successful implementation of three of the first four recommendations. In other words, a strong data infrastructure and high rates of participation in PI efforts must exist first before a method for distinguishing higher- vs. lower-performing programs is robust and credible. Without these precursors the findings of PI efforts may be biased and inaccurate, which will only undermine future efforts.

The existing client-level data can be leveraged to further examine subgroup differences in treatment outcomes: for whom, and under what circumstances, do different types of treatment yield optimal or suboptimal outcomes?

Examine barriers to SUD programs among clients and staff regularly. There is a continual need to evaluate how treatment systems are providing services to clients: how does it compare to what they say they are providing (ASAM, 2014)? The literature on performance measurement in SUD treatment (and mental health treatment) emphasize the importance of including consumers and providers at all levels of organizations in the development and implementation of performance indicators to maximize adherence, meaningfulness, and utility. The Kentucky Behavioral Health Planning and Advisory Council is involved in

assisting DBHDID in designing a recovery-oriented system of care, advising the DBHDID on the Substance Abuse Prevention and Treatment Block Grant (SABG) funds and the Mental Health Block Grant (MHBG) funds and on the quality of statewide, recovery-oriented behavioral health services, and monitor and review the allocation and quality of statewide behavioral health services (https://dbhdid.ky.gov/dbh/kbhpac.aspx). The council's required membership is to be composed of 51% of consumers and family members of individuals with mental health and SUD. Additionally, community advisory boards, such as the Survivors Union of the Bluegrass, funded by SUPRA and the UK Center for Clinical and Translational Science at the University of Kentucky, and Voices of Hope (Travis, 2023) are an example of collaborative work between researchers, community providers, and consumers in SUD treatment and prevention. Nonetheless, a wealth of information about the quality of services provided in SUD programs remains untapped by not regularly conducting research on structure, process, and perceptions of care as well as barriers to entering and staying in treatment. Thus, periodic examinations of aspects of quality of treatment that are not regularly included in the annual process indicators and client-level outcome evaluations are recommended.

Link structure and process indicators to outcome data to develop evidence that SUD treatment and outcomes improve when performance indicators are used. Building on the existing data and evaluation infrastructure, it would be beneficial to link structure and process indicators to client-level outcomes in future research to investigate important unanswered questions in the research literature about the impact of treatment structure and process indicators on client outcomes. Nested hierarchical models may be applied to analyzing data of mixed levels of data (program level vs. client-level). Using a mixed method of investigating process and outcome performance indicators to evaluate SUD treatment across organizations and provider systems is a more reasonable approach than adopting "pay-for-performance" without consideration of outcomes or adopting "pay-for-outcomes" without consideration of structure and process indicators (Hodgkin et al., 2020).

Develop the infrastructure and processes so that performance indicator data for programs can be widely disseminated to consumers, providers, policymakers, and other interested stakeholders. One of the primary uses of performance indicators is to provide information on how providers are delivering services to client populations and communities (i.e., program accountability). The current process of sharing information from the client-level outcome evaluations is not reaching all the interested groups (e.g., consumers) or individuals within groups that already receive the information (i.e., providers within SUD programs). Some states have developed online dashboards to share information with the public about their programs (e.g., North Carolina, Texas, Vermont). Yet, there are critical issues to be considered and solved before such efforts can be executed well with high data integrity and quality and in a time frame that is useful for consumers and policymakers. Workgroups composed of individuals from interested stakeholder groups could begin the process of working through options for more widely disseminating performance indicator data for publicly funded SUD programs.

Conclusion

This review of the literature was prompted by one-time funding of research on

performance indicators of SUD treatment and recovery programs that the Kentucky legislature included in the 2022-2023 state budget. Building on the existing client-level treatment outcome evaluations in Kentucky, this expanded evaluation has examined program-level performance indicators and barriers to entering and staying in treatment for individuals with substance use disorders (SUD) in Kentucky. This review of the literature on performance indicators of SUD treatment informed the secondary data analysis of performance indicators by type of program (CMHC, Recovery Kentucky, and SAP) as well as region within the major types of programs evaluated.

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Appendix B: Statistics on the number of multiple surveys per person across the three outcome evaluations

Identification of Multiple Intake Surveys in RCOS, KTOS, and CJKTOS

The following data elements were compared to identify the same client completing intake surveys more than one time across the three studies for the period, December 31, 2015 through January 31, 2023:

- SSN
- First Name
- Last Name

First, we attempted to match on these three elements plus DOB, but there are so many data entry errors with DOB, that this created obvious errors in matching. We were missing matches that have slight alterations in first names, last names, and SSN. There is a small percent of individuals (n = 107, 0.8%) who had intake survey data entered twice on the same day (so not the type of multiple entries we intended to identify, but I left them in); they are included as individuals with multiple surveys in Table B.1.

This is a conservative approach to identifying multiple surveys per person. However, an approach to matching on fewer elements or partial matches on some of the elements creates a different problem, of matching on cases that are not the same person. Other than having someone visually check these matches to verify, there would be no way to determine if they are the same person.

TABLE B.1. NUMBER OF INTAKE SURVEYS AND UNDUPLICATED PERSONS WITH INTAKE SURVEYS

	Frequency and (percent) or mean and (standard deviation)
Number of intake surveys	87,726
Number of unduplicated persons	69,759
Number of individuals who completed intake surveys in:	
RCOS	13,159
KTOS	30,410
CJKTOS	32,088
Number of studies in which person completed intake surveys	
1	64,125 (91.9%)
2	5,369 (7.7%)
3	265 (0.4%)

TABLE B.1. NUMBER OF INTAKE SURVEYS AND UNDUPLICATED PERSONS WITH INTAKE SURVEYS (CONT.)

	Frequency and (percent) or mean and (standard deviation)
Number of surveys per person	
1	56,000 (80.3%)
2	10,497 (15.0%)
3	2,506 (3.6%)
4	603 (0.9%)
5	126 (0.2%)
6	20 (0.0%)
7	5 (0.0%)
8	1 (0.0%)
9	1 (0.0%)
Average number of surveys per person (with multiple entries)	1.3 (SD = 0.59)

TABLE B.2. AMONG INDIVIDUALS WITH MULTIPLE INTAKE SURVEYS, NUMBER OF SURVEYS

	Frequency and (percent) or mean and (standard deviation)
Among individuals who completed more than intake survey in this period:	(n = 13,759)
Number of surveys per person	
2	10,497 (76.3%)
3	2,506 (18.2%)
4	603 (4.4%)
5	126 (0.9%)
6	20 (0.1%)
7	5 (0.0%)
8	1 (0.0%)
9	1 (0.0%)

Appendix C: Profiles for performance indicators for program types: Recovery Kentucky, CMHCs, DOC Prison SAP

Recovery from Substance Use Disorder in Recovery Kentucky Programs

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) programs in Recovery Kentucky is presented in five main categories: (1) barriers to treatment engagement, (2) services provided, (3) clients' perceptions of treatment, (4) client-level outcomes, and (5) organizational factors. Information about barriers to treatment, services provided, and organizational factors is from a survey with 130 providers who work with clients with SUD in Recovery Kentucky programs.[41] Findings about clients' perceptions of treatment and client-level outcomes is from 2,417 clients in Recovery Kentucky programs who completed an intake and follow-up survey in a multi-year outcome evaluation, Recovery Center Outcome Study (RCOS).[42]

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 130)

58.5%
Concern about separation from children or other people

47.7%
Clients having severe mental health problems

45.4%
Some clients not taking recovery seriously which makes it difficult for other clients

31.5%
Lack of family or social support for recovery

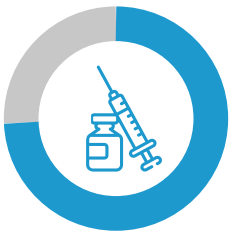
30.8%
Clients having a physical disability

Services Provided

The five most commonly staff-reported services offered during the program (n = 130)

96.9%
AA/NA groups

81.5%
Housing assistance



74.6%
Nalaxone and overdose training

73.8%
Peer support specialist

71.5%
Trauma education and safety planning

[41] Data from 130 staff members in Recovery Kentucky programs was collected in a larger study of providers in CMHCs, recovery programs, and other SUD programs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[42] Data was collected from 2,417 clients who entered Phase 1 of Recovery Kentucky programs and completed an intake survey in Recovery Center Outcome Study (RCOS) in FY 2013-2021 and then completed a follow-up survey with the research team about 12 months later. Details about RCOS are available at https://cdar.uky.edu/RCOS/

Most commonly and least commonly staff-reported services provided to some or all clients in Recovery Kentucky programs (n = 130)

	Most commonly reported	Least commonly reported
Services		
Telemedicine/telehealth	**57.7%**	
Individual counseling	**53.1%**	
Allow children to stay on-site or visit	**50.8%**	
Offer medical detoxification		**22.3%**
Provide childcare services		**10.8%**
Resource supports		
Help clients access health insurance	**95.4%**	
Have housing options as part of program	**93.8%**	
Help clients get an ID or birth certificate	**89.2%**	
Case management or linking to resources for basic needs	**86.9%**	
Help with civil legal issues		**53.1%**
Offer smoking cessation counseling or other nicotine addiction support		**51.5%**
Discharge planning		
Discharge planning	**94.6%**	
Perform exit assessment for recovery needs	**91.5%**	
Perform exit assessment with individuals who have dropped out		**50.0%**

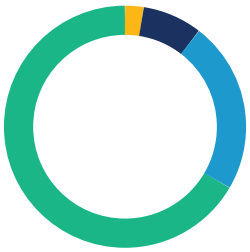
Clients' Perceptions of the Recovery Program

Clients' ratings of the recovery program at follow-up

Clients had largely favorable perceptions of the recovery program[43, 44]

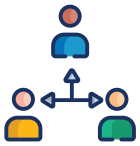
8.6

Average rating of program
[1 = Worst, 10 = Best, n = 2,414]



2.7%, Not at all
8.7%, Somewhat
22.9%, Pretty well
65.8%, Extremely well

How well the program worked for client
(among individuals who were asked the question, n = 2,417)



89.7%

Client would refer a close friend or relative to this provider
[% Yes, n = 1,167]

8.4

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 1,052]

8.7

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 1,052]

7.9

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 1,049]

8.5

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 1,053]

8.5

Perceived effectiveness of the program
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 1,053]

[43] Three individuals had missing values for overall rating of the program.

[44] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of SUD clients in Recovery Kentucky programs followed up in RCOS

A little more than half of the 2,417 clients were female (53.1%), the vast majority of clients were White (91.5%), and 5.8% were Black/African American. The majority of clients (52.8%) reported living in a metropolitan county, 37.2% lived in a non-metropolitan county, and 10.0% in a very rural county. The average age of clients was 33.9 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 1,990)[45, 46]

Any illegal drug use***

87.9% Intake | **12.4%** Follow-up

Opioid (including heroin) use***

68.8% Intake | **6.1%** Follow-up

Methamphetamine use***

48.0% Intake | **2.9%** Follow-up

Problem alcohol use***

47.0% Intake | **4.5%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 1,658)

80.2% Intake | **9.3%** Follow-up

***p < .001

[45] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[46] Questions about SUD criteria were added in July 2015; thus, 759 individuals were not asked these questions at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems[47]

Depression or generalized anxiety*** (n = 2,415)

79.9% Intake | **20.9%** Follow-up

Suicidality*** (n = 2,412)

29.5% Intake | **2.3%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 2,410)

11.7 Intake | **1.8** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[48]

Employed full-time or part-time*** (n = 2,387)

46.6% Intake | **71.7%** Follow-up

Homelessness*** (n = 2,268)

34.6% Intake | **6.0%** Follow-up

Difficulty meeting basic needs*** (n = 2,401)

49.2% Intake | **20.9%** Follow-up

Arrest or incarcerated*** (n = 2,417)

79.5% Intake | **12.1%** Follow-up

**p < .01, ***p < .001

Significant improvement in recovery support and subjective quality of life[49, 50]

Attended mutual help recovery group meetings*** (n = 2,402)

35.4% Intake | **81.7%** Follow-up

***p < .001

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 2,401)

3.4 Intake | **8.2** Follow-up

[47] Two individuals did not answer items at follow-up about depression and/or anxiety, five individuals had missing data for suicidality at follow-up, and seven individuals had missing data for number of days poor health limited daily activities at follow-up.

[48] Thirty individuals had missing data for usual employment status at follow-up, 149 individuals had missing data for homelessness at follow-up because they were living in a recovery center and were not asked the question (n = 128) or they had missing data for other reasons (n = 21), and 16 individuals had missing data for at least one item on the difficulty meeting basic needs scale at follow-up.

[49] Fifteen individuals had missing values for mutual help recovery meetings at follow-up.

[50] Sixteen had missing values on the rating of quality of life at follow-up.

Significant improvement in multidimensional recovery (n = 1,495)[51]

Had all positive dimensions of recovery***

0.4% Intake | **52.1%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 130)

58.5%
Number of clients who enter the program

46.2%
Number of clients who drop out

36.2%
Clients' use of recovery support services

34.6%
Obtain feedback from clients about the program

34.6%
Percent of clients who attend treatment for 30 days or longer

33.1%
Wait time from clients' first contact to assessment

31.5%
Clients' status and progress after leaving the program (systematically)

[51] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The six most frequently staff-reported organizational challenges (n = 130)

53.8%
Burnout among staff

50.0%
There are limited opportunities for job advancement

46.2%
Staff shortages

41.5%
The job is high effort but the reward is low

40.0%
Caseloads are too high

40.0%
There is limited transparency about decision making

Staff members have high job satisfaction (n = 130)

4.4
Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Recovery from substance use disorder in Recovery Kentucky programs: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Kentucky's Community Mental Health Centers

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Kentucky's Community Mental Health Centers (CMHC) is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Pathways, Inc. is from a secret shopper study (n = 71).[52] Information about barriers to treatment, services provided, and organizational factors is from a survey with 615 providers who work with clients with SUD in CMHCs.[53] Findings about clients' perceptions of treatment and client-level outcomes is from 7,158 clients in SUD treatment in Kentucky's CMHCs who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[54]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment in CMHCs was 12.3 days (0 - 79 days). Thirty of 50 callers who spoke with staff (60.0%) were screened for opioid/injection drug use, 20 (40.0%) were screened for pregnancy, and 14 (28.0%) were screened for incarceration. Ten of the fifty staff persons (20.0%) who spoke to callers offered information/services (e.g. offer of information or referral) to them while waiting for the appointment. Callers gave an average rating of 7.3 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 615)

65.5%
Concern about separation from children or other people

65.2%
Some clients not taking recovery seriously which makes it difficult for other clients

62.3%
Lack of family or social support for recovery

53.8%
Limits imposed by insurance

51.7%
Time conflicts (e.g. childcare, work schedule)

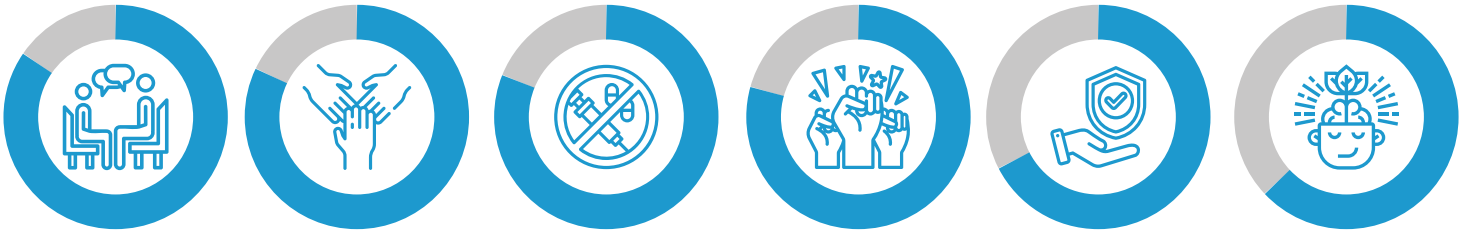
[52] A secret shopper study was conducted February 17, 2023- April 27, 2023. Seventy-one calls were made to CMHCs: 43 during normal business hours, and 28 after hours calls.

[53] Data from 615 staff members was collected in a larger study of providers in all CMHCs and other SUD programs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[54] Data was collected from 7,158 clients who entered SUD treatment in CMHCs and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The six most commonly staff-reported evidence-based practices the program uses (n = 615)



85.7% Cognitive behavioral therapy

83.6% Peer support specialists

83.3% Relapse prevention services

80.7% Motivational interviewing

67.2% Seeking Safety

63.9% Mindfulness-based relapse prevention

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 615)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	95.9%	
Mental health services	95.1%	
Telemedicine/telehealth	94.1%	
Medications to treat addiction	82.6%	
Offer medical detoxification		35.3%
Provide childcare services		20.0%
Resource supports		
Case management or linking to resources for basic needs	95.3%	
Help clients access health insurance	91.4%	
Help clients get an ID or birth certificate	85.0%	
Transportation assistance	81.1%	
Help with criminal legal issues		43.9%
Help with civil legal issues		41.5%
Discharge planning		
Discharge planning	96.4%	
Perform exit assessment for recovery needs	90.4%	
Perform exit assessment with individuals who have dropped out		68.9%

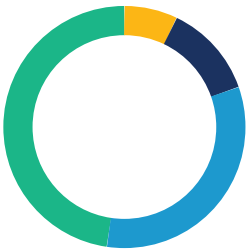
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[55, 56]

8.3

Average rating of program
[1 = Worst, 10 = Best, n = 7,059]



- **6.0%**, Not at all
- **13.2%**, Somewhat
- **32.4%**, Pretty well
- **48.5%**, Extremely well

How well treatment worked for client
(among individuals who were asked the question, n = 3,578)

90.0%

Client would refer a close friend or relative to this provider
[% Yes, n = 3,589]

8.5

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 3,244]

8.7

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 3,246]

8.1

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 3,246]

8.5

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 3,241]

8.3

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 3,233]

[55] Ninety-nine individuals had missing values for overall rating of the program.

[56] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of SUD clients in CMHCs followed up in KTOS

About half of the 7,158 clients were male (50.8%), the vast majority of clients were White (92.1%), and 5.3% were Black/African American. The majority of clients (50.8%) reported living in a non-metropolitan county, 29.3% lived in a metropolitan county, and 19.9% in a very rural county. The average age of clients was 35.0 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 6,994)[57, 58]

Any illegal drug use***

83.1% Intake | **32.1%** Follow-up

Opioid (including heroin) use***

48.8% Intake | **13.3%** Follow-up

Methamphetamine use***

38.5% Intake | **7.4%** Follow-up

Problem alcohol use*** (n = 6,993)

39.9% Intake | **14.6%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 6,956)

75.0% Intake | **25.6%** Follow-up

***p < .001

[57] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[58] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems[59]

Depression or generalized anxiety*** (n = 7,120)

63.0% Intake | **41.2%** Follow-up

Suicidality*** (n = 7,131)

19.1% Intake | **8.4%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 7,096)

7.7 Intake | **3.9** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[60, 61]

Employed full-time or part-time** (n = 7,100)

55.8% Intake | **54.1%** Follow-up

Homelessness*** (n = 7,141)

24.6% Intake | **6.5%** Follow-up

Difficulty meeting basic needs** (n = 7,091)

49.1% Intake | **39.1%** Follow-up

Arrest or incarcerated*** (n = 7,089)

65.7% Intake | **34.8%** Follow-up

**p < .01, ***p < .001

Significant improvement in recovery support and subjective quality of life[62, 63]

Attended mutual help recovery group meetings*** (n = 7,123)

32.3% Intake | **47.6%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 5,945)

6.5 Intake | **7.8** Follow-up

***p < .001

[59] Thirty-eight individuals did not answer items at follow-up about depression and/or anxiety, twenty-seven individuals had missing data for suicidality at follow-up, and sixty-two individuals had missing data for number of days poor health limited daily activities at follow-up.

[60] Fifty-eight individuals had missing data for usual employment status at follow-up, seventeen individuals had missing data for homelessness at follow-up, and sixty-seven individuals had missing data for at least one item on the difficulty meeting basic needs scale at follow-up.

[61] Sixty-nine individuals had missing values for arrest or incarceration at follow-up.

[62] Thirty-five individuals had missing values for mutual help recovery meetings at follow-up.

[63] The item about quality of life was added in June 2015; thus, 1,182 had missing values on quality of life because they were not asked the question and an additional 31 individuals had missing values on rating of quality of life at follow-up.

Significant improvement in multidimensional recovery (n = 5,667)[64]

Had all positive dimensions of recovery***

5.6% Intake | **35.3%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 615)

41.6%
Number of clients who enter the program

32.4%
Obtain feedback from clients about the program

31.9%
Wait time from clients' first contact to assessment

30.6%
Clients' use of recovery support services

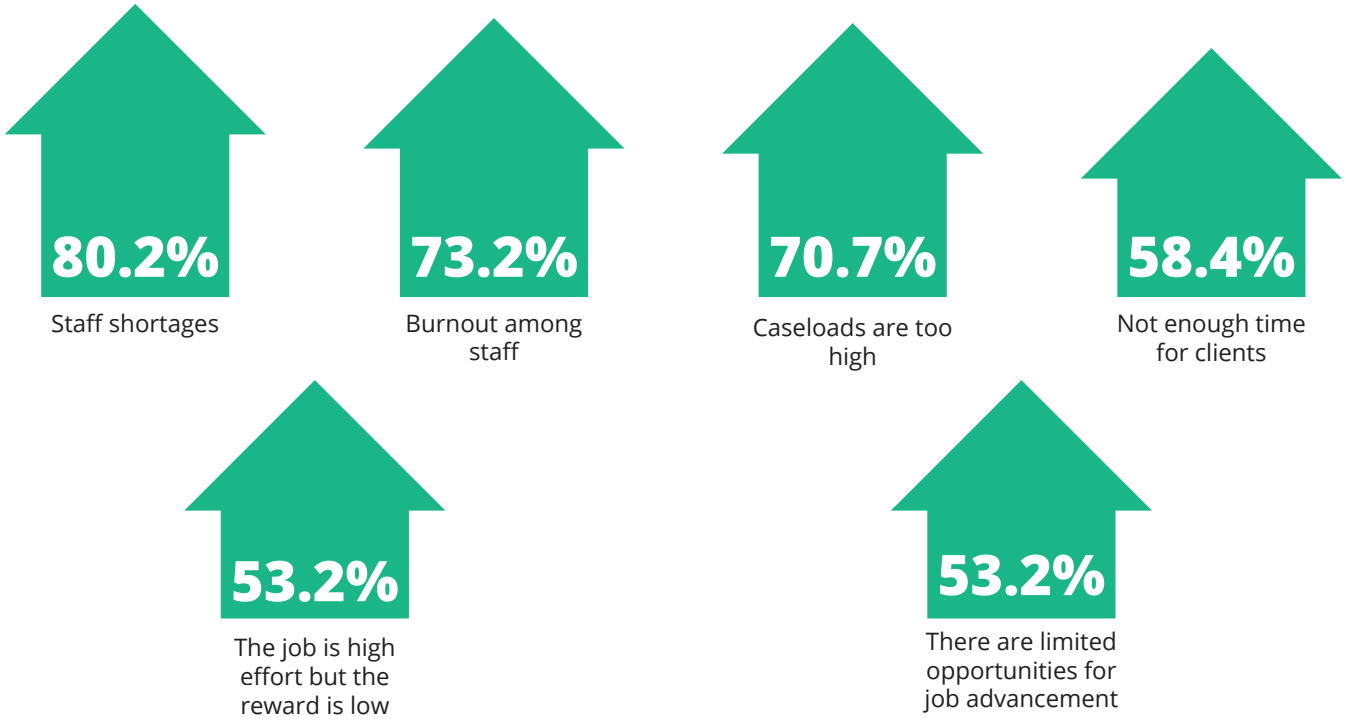
30.4%
Number of clients who drop out

29.9%
Percent of clients who attend treatment for 30 days or longer

22.4%
Clients' status and progress after leaving the program (systematically)

[64] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The six most frequently staff-reported organizational challenges (n = 615)



Staff members have high job satisfaction (n = 615)

4.1 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Kentucky's Community Mental Health Centers: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Department of Corrections Prison Substance Abuse Program

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Prison Substance Abuse Program (SAP) is presented in five main categories: (1) barriers to treatment engagement, (2) services provided, (3) clients' perceptions of treatment, (4) client-level outcomes, and (5) organizational factors. Information about barriers to treatment, services provided and organizational factors is from a survey with 12 providers who work with clients with SUD in prison SAP.[65] Findings about clients' perceptions of treatment and client-level outcomes is from 331 clients at prison SAP who completed an intake and follow-up survey in a multi-year outcome evaluation, Criminal Justice Kentucky Treatment Outcome Study (CJKTOS).[66]

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 12)

66.7%
Clients having severe mental health problems

58.3%
Limits imposed by insurance

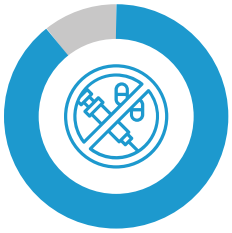
58.3%
Some clients not taking recovery seriously which makes it difficult for other clients

41.7%
Cost of treatment

41.7%
Medication for chronic mental or physical problems

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 12)

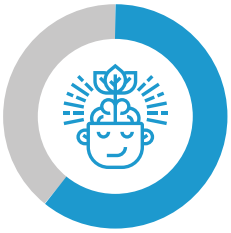


91.7%
Relapse prevention services

83.3%
Contingency management

83.3%
Motivational interviewing

75.0%
Cognitive behavioral therapy



58.3%
Mindfulness-based relapse prevention

[65] Data from 12 staff members in prison SAP was collected in a larger study of providers in Kentucky's CMHCs, Department of Corrections SAP, Recovery Kentucky, and neonatal facilities. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[66] Data was collected from 331 clients who entered SUD treatment in prison SAP and completed an intake survey in Criminal Justice Kentucky Treatment Outcome Study (CJKTOS) in FY 2018-2021 and then completed a follow-up survey with the research team about 12 months after release from custody. Details about CJKTOS are available at https://cdar.uky.edu/cjktos/

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 12)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	83.3%	
Medications to treatment addiction	66.7%	
Mental health services	41.7%	
Offer medical detoxification		16.7%
Offer family counseling		16.7%
Resource supports		
Case management or linking to resources for basic needs	75.0%	
Housing options as part of the program	66.7%	
Help clients get an ID or birth certificate	41.7%	
Help with civil legal issues		25.0%
Help with criminal legal issues		25.0%
Offer smoking cessation counseling or other supports		16.7%
Discharge planning		
Discharge planning	91.7%	
Perform exit assessment for recovery needs	66.7%	
Perform exit assessment with individuals who have dropped out		33.3%

Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program (n = 331)

7.2
Average rating of program
[1 = Worst, 10 = Best]

80.4%
Client considered the program to be successful
[% Yes]

8.6
Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client"]

8.6
Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff"]

7.9
Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met"]

Client-level outcomes

Demographics of SAP clients followed up in CJKTOS

About three-quarters of the 331 clients were male (75.8%), most clients were White (81.9%), and 14.2% were Black/African American. The largest proportion of clients (48.0%) reported their arrest was in a metropolitan county, 42.9% in a non-metropolitan county, and 9.1% in a very rural county. The average age was 37.5 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 331)[67]

Any illegal drug use***

91.2% Intake | **49.5%** Follow-up

Opioid (including heroin) use***

55.6% Intake | **18.4%** Follow-up

Methamphetamine use***

55.6% Intake | **30.2%** Follow-up

Problem alcohol use***

41.7% Intake | **10.3%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 136)

91.2% Intake | **37.5%** Follow-up

***p < .001

Significant reductions in past-12-month mental health problems (n = 331)

Depression or generalized anxiety***

69.8% Intake | **57.7%** Follow-up

Suicidality***

14.5% Intake | **6.9%** Follow-up

***p < .001

[67] 195 clients completed a version of the follow-up survey before implementation of SUD items.

Change in other targeted factors from intake to follow-up

Significant improvements in employment and criminal justice system involvement (n = 331)

Employed full-time or part-time**

64.9% Intake | **75.0%** Follow-up

Living in stable housing

84.6% Intake | **87.0%** Follow-up

Arrest or incarcerated[a]

100% Intake | **36.0%** Follow-up

**p < .01

a—Statistical significance cannot be calculated due to all individuals being incarcerated at time of program entry.

Significant improvement in recovery support (n = 331)

Attended mutual help recovery group meetings

24.5% Intake | **30.5%** Follow-up

Had contact with family or friends who were supportive of recovery***

75.4% Intake | **92.1%** Follow-up

***p < .001

Improvement in multidimensional recovery (n = 136)[68]

Had all positive dimensions of recovery

0.0% Intake | **33.1%** Follow-up

[68] Statistical significance cannot be calculated due to no participants at baseline endorsing all dimensions of recovery; this is due to all individuals being incarcerated at time of program entry. Multidimensional recovery is based on 7 items, including: no SUD, employed at least part-time or in school, stably housed, no arrest or incarceration, no suicidality, had recent contact with friends or family who were supportive of recovery, and reported moderately or very good self-efficacy for sobriety. SUD items were not added to follow-up until 2019.

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 12)

75.0%
Number of clients who drop out

66.7%
Number of clients who enter the program

58.3%
Wait time from clients' first contact to assessment

41.7%
Clients' use of recovery support services

33.3%
Obtain feedback from clients about the program

33.3%
Percent of clients who attend treatment for 30 days or longer

25.0%
Clients' status and progress after leaving the program (systematically)

The five most frequently staff-reported organizational challenges (n = 12)

83.3%
Caseloads are too high

75.0%
Staff shortages

75.0%
Lack of coordination with other community organizations

75.0%
Not enough time for clients

66.7%
Location problems (e.g. not enough space, too far away from other services)

Staff members have moderately high job satisfaction (n = 12)

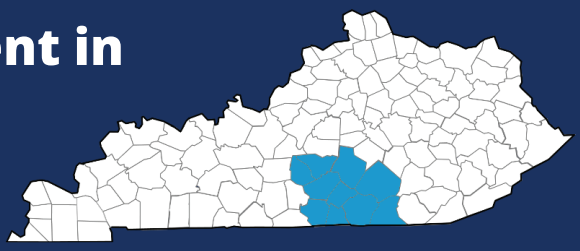
3.8
Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., Tillson, M., & Scrivner, A. (2023). *Substance Use Disorder Treatment in Department of Corrections Prison Substance Abuse Program: Profile of Selected Performance Indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Appendix D:
Profiles for performance indicators for CMHC regions

Substance Use Disorder Treatment in the Adanta Group

Profile of Selected Key Performance Indicators



A brief profile of performance indicators for substance use disorder (SUD) treatment in The Adanta Group is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at The Adanta Group is from a secret shopper study (n = 5).[69] Information about barriers to treatment, services provided, and organizational factors is from a survey with 8 providers who work with clients with SUD at The Adanta Group.[70] Findings about clients' perceptions of treatment and client-level outcomes is from 288 clients at The Adanta Group who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[71]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at The Adanta Group for 3 callers who received an appointment was 2.3 days (1 – 5 days). None of the three callers (0.0%) who spoke with staff members were screened for pregnancy or incarceration, and all three (100%) were screen for opioid/injection drug use. All three staff persons (100%) who spoke to callers offered information/services (e.g. information about the national suicide prevention hotline and going to the ER or to the agency if in crisis) to them while waiting for the appointment. Callers gave an average rating of 7.0 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

[69] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to The Adanta Group: 3 during normal business hours, and 2 after hours calls.

[70] Data from 8 staff members at The Adanta Group was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[71] Data was collected from 288 clients who entered SUD treatment in The Adanta Group and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Barriers to Treatment Engagement

The seven most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 8)

62.5%
Cost of treatment

50.0%
Lack of insurance coverage

50.0%
Distance and commute time

50.0%
Finding transportation to and from the facility

50.0%
Criteria to stay in the program

50.0%
Time conflicts (e.g. childcare, work schedule)

50.0%
Lack of program structure

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 8)

87.5%
Cognitive behavioral therapy

75.0%
Matrix model

50.0%
Relapse prevention services

37.5%
Peer support specialists

37.5%
Motivational interviewing

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 8)

	Most commonly reported	Least commonly reported
Services		
Mental health services	**100%**	
Telemedicine/telehealth	**100%**	
Individual counseling	**100%**	
Provide childcare services		**25.0%**
Offer medical detoxification		**12.5%**
Resource supports		
Case management or linking to resources for basic needs	**100%**	
Help clients get an ID or birth certificate	**87.5%**	
Transportation assistance	**75.0%**	
Help with civil legal issues		**12.5%**
Test for hepatitis C, HIV, and STDs		**12.5%**
Discharge planning		
Discharge planning	**100%**	
Perform exit assessment for recovery needs	**87.5%**	
Perform exit assessment with individuals who have dropped out		**62.5%**

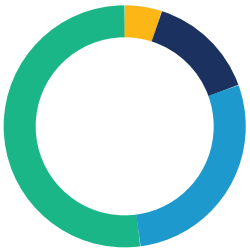
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[72]

8.3

Average rating of program
[1 = Worst, 10 = Best, n = 286]



3.8%, Not at all
11.4%, Somewhat
32.9%, Pretty well
51.9%, Extremely well

How well treatment worked for client
(among individuals who were asked the question, n =79)

88.6%

Client would refer a close friend or relative to this provider
[% Yes, n = 79]

8.3

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 73]

8.7

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 73]

7.9

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 73]

8.5

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 73]

8.2

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 73]

[72] Two individuals had missing values for overall rating of the program.

Client-level outcomes

Demographics of the Adanta Group clients followed up in KTOS

More than half of the 288 clients were male (56.3%), most clients were White (94.1%), and 4.2% were Black/African American. The majority (55.7%) reported living in very rural county, 41.5% lived in a non-metropolitan county, and 2.8% lived in a metropolitan county. The average age of clients was 36.2 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 283)[73, 74, 75]

Any illegal drug use***

71.7% Intake | **26.5%** Follow-up

Opioid (including heroin) use***

39.6% Intake | **8.5%** Follow-up

Methamphetamine use***

30.0% Intake | **2.8%** Follow-up

Problem alcohol use*** (n = 282)

41.1% Intake | **16.3%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 279)

60.2% Intake | **20.4%** Follow-up

***p < .001

[73] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

[74] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[75] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health problems[76]

Depression or generalized anxiety*** (n = 287)

50.9% Intake | **36.2%** Follow-up

Suicidality* (n = 288)

11.5% Intake | **6.3%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days (n = 285)

5.4 Intake | **4.6** Follow-up

*p < .05, ***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in economic indicators and criminal justice system involvement[77, 78]

Employed full-time or part-time (n = 287)

56.1% Intake | **57.5%** Follow-up

Homelessness*** (n = 287)

16.4% Intake | **3.8%** Follow-up

Difficulty meeting basic needs (n = 288)

43.8% Intake | **37.8%** Follow-up

Arrest or incarcerated*** (n = 287)

73.5% Intake | **34.5%** Follow-up

Significant improvement in subjective quality of life[79]

Attended mutual help recovery group meetings (n = 288)

33.7% Intake | **38.9%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 197)

6.9 Intake | **8.0** Follow-up

***p < .001

[76] One individual did not answer items at follow-up about depression and/or anxiety, and three individuals had missing data for number of days poor health limited daily activities.

[77] One individual had missing data for usual employment status at follow-up, and one individual had missing data for homelessness at follow-up

[78] One individual had a missing value for arrest or incarceration at follow-up.

[79] The item about quality of life was added in June 2015.

Significant improvement in multidimensional recovery[80]

Had all positive dimensions of recovery*** (n = 192)

5.7% Intake | **35.4%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 8):

37.5%
Obtain feedback from clients about the program

37.5%
Wait time from clients' first contact to assessment

25.0%
Number of clients who enter the program

25.0%
Number of clients who drop out

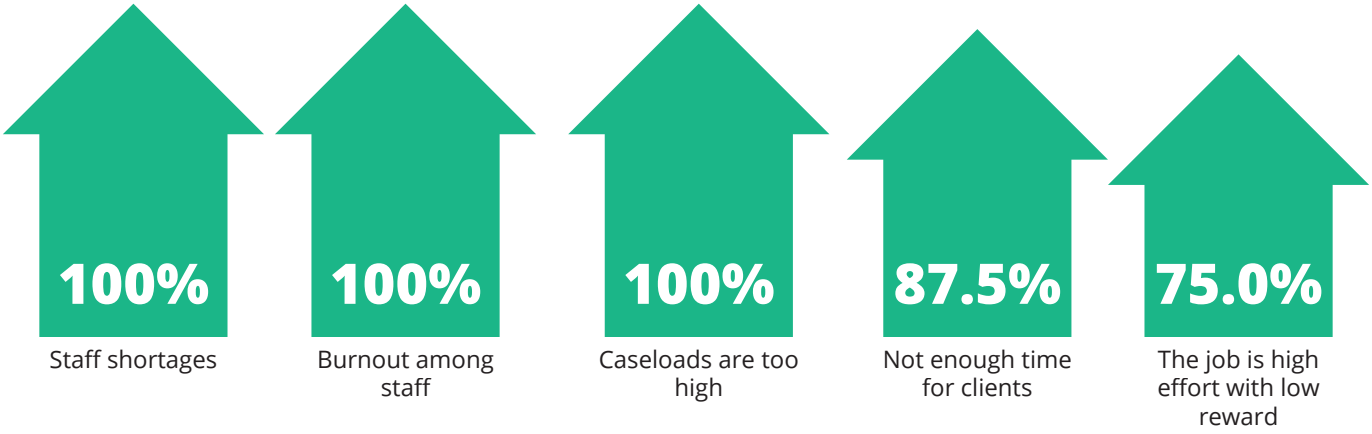
12.5%
Clients' use of recovery support services

12.5%
Percent of clients who attend treatment for 30 days or longer

12.5%
Clients' status and progress after leaving the program (systematically)

[80] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 8)



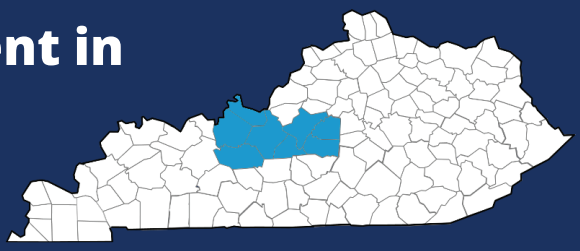
Staff members have high job satisfaction (n = 8)

4.1 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in The Adanta Group: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Communicare, Inc.

Profile of Selected Key Performance Indicators



A brief profile of performance indicators for substance use disorder (SUD) treatment in Communicare, Inc. is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Communicare, Inc. is from a secret shopper study (n = 6).[81] Information about barriers to treatment, services provided, and organizational factors is from a survey with 28 providers who work with clients with SUD at Communicare, Inc.[82] Findings about clients' perceptions of treatment and client-level outcomes is from 600 clients at Communicare, Inc. who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[83]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Communicare, Inc. was 23.3 days (1 – 62 days). One of the six callers (16.7%) who spoke to staff members was screened for pregnancy, another caller (16.7%) was screened for incarceration, and two of the six callers (33.3%) were screened for opioid/injection drug use. None of the staff persons offered information/services to callers while they were waiting for the appointment. Callers gave an average rating of 6.0 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 28)

64.3%
Lack of family or social support for recovery

64.3%
Concern about separation from children or other people

60.7%
Some clients not taking recovery seriously which makes it difficult for other clients

57.1%
Time conflicts (e.g. childcare, work schedule)

53.6%
Concern about about separation from or care of pets

[81] A secret shopper study was conducted February 17, 2023- April 27, 2023. Six calls were made to Communicare, Inc.: 4 during normal business hours, and 2 after hours calls.

[82] Data from 28 staff members at Communicare, Inc. was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[83] Data was collected from 600 clients who entered SUD treatment in Communicare, Inc. and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 28)

92.9% Peer support specialists

85.7% Relapse prevention services

78.6% Cognitive behavioral therapy

78.6% Motivational interviewing

71.4% Mindfulness-based relapse prevention

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 28)

	Most commonly reported	Least commonly reported
Services		
Mental health services	100%	
Telemedicine/telehealth	100%	
Individual counseling	96.4%	
Medications to treat addiction	92.9%	
Provide childcare services		53.6%
Offer medical detoxification		7.1%
Resource supports		
Case management or linking to resources for basic needs	100%	
Help clients get ID or birth certificate	100%	
Help clients access health insurance	92.9%	
Help with civil legal issues		50.0%
Test for hepatitis C, HIV, and STDs		14.3%
Discharge planning		
Discharge planning	100%	
Perform exit assessment for recovery needs	89.3%	
Perform exit assessment with individuals who have dropped out		50.0%

Clients' Perceptions of Treatment

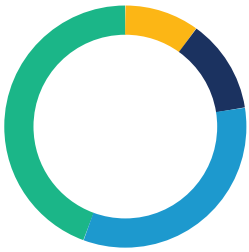
Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program.[84]

8.1

Average rating of program

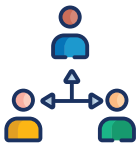
[1 = Worst, 10 = Best, n = 590]



How well treatment worked for client

(among individuals who were asked the question, n =410)

- **9.0%**, Not at all
- **14.1%**, Somewhat
- **32.9%**, Pretty well
- **43.9%**, Extremely well



86.4%

Client would refer a close friend or relative to this provider

[% Yes, n = 411]

8.2

Shared decision-making between client and staff

[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 374]

8.6

Respect shown to client

[0 = Low, 10 = high rating for "staff believed in client", n = 373]

8.0

Communication between staff and client

[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 373]

8.2

Therapeutic alliance

[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 373]

8.0

Perceived effectiveness of treatment

[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 373]

[84] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of Communicare, Inc. clients followed up in KTOS

More than half of the 600 clients were female (57.0%), most clients were White (89.6%), and 5.4% were Black/African American. The majority of clients (58.7%) reported living in a metropolitan county, 27.9% in a non-metropolitan county, and 13.4% in a very rural county. The average age of clients was 34.5 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 581)[85, 86]

Any illegal drug use***

88.6% Intake | **34.4%** Follow-up

Opioid (including heroin) use***

34.8% Intake | **10.1%** Follow-up

Methamphetamine use***

51.1% Intake | **9.5%** Follow-up

Problem alcohol use***

42.0% Intake | **16.4%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 586)

72.0% Intake | **24.2%** Follow-up

***p < .001

[85] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[86] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems[87]

Depression or generalized anxiety*** (n = 598)

71.4% Intake | **46.8%** Follow-up

Suicidality*** (n = 596)

25.2% Intake | **10.2%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 596)

9.2 Intake | **4.3** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[88, 89]

Employed full-time or part-time (n = 597)

60.3% Intake | **56.6%** Follow-up

Homelessness*** (n = 598)

29.8% Intake | **7.9%** Follow-up

Difficulty meeting basic needs*** (n = 595)

55.1% Intake | **42.2%** Follow-up

Arrest or incarcerated*** (n = 597)

56.3% Intake | **29.0%** Follow-up

Significant improvement in recovery support and subjective quality of life[90, 91]

Attended mutual help recovery group meetings*** (n = 599)

33.2% Intake | **41.7%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 577)

6.5 Intake | **7.6** Follow-up

***p < .001

[87] Two individuals did not answer items at follow-up about depression and/or anxiety, four individuals had missing data at follow-up about suicidality, and four individuals had missing data for number of days poor health limited daily activities.

[88] Three individuals had missing values for usual employment status at follow-up, two individuals had missing values for homelessness at follow-up, and five individuals had a missing value for at least one of the items in the difficulty meeting basic needs scale at follow-up.

[89] Three individuals had missing values for arrest or incarceration at follow-up.

[90] One individual had a missing value for mutual help recovery meetings at follow-up, and seven individuals had missing values for the number of persons who provided recovery support at follow-up.

[91] The item about quality of life was added in June 2015.

Significant improvement in multidimensional recovery[92]

Had all positive dimensions of recovery*** (n = 554)

5.6% Intake | **39.2%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 28):

42.9%
Number of clients who enter the program

39.3%
Number of clients who drop out

35.7%
Percent of clients who attend treatment for 30 days or longer

28.6%
Wait time from clients' first contact to assessment

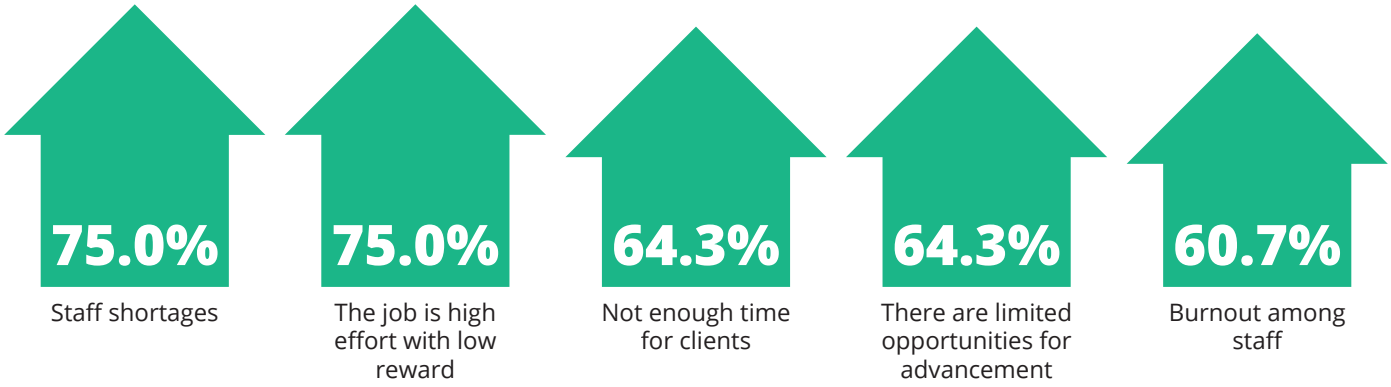
28.6%
Clients' use of recovery support services

17.9%
Obtain feedback from clients about the program

17.9%
Clients' status and progress after leaving the program (systematically)

[92] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 28)



Staff members have high job satisfaction (n = 28)

4.3 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Communicare, Inc.: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Comprehend, Inc.

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Comprehend, Inc. is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Comprehend, Inc. is from a secret shopper study (n = 5).[93] Information about barriers to treatment, services provided, and organizational factors is from a survey with 14 providers who work with clients with SUD at Comprehend, Inc.[94] Findings about clients' perceptions of treatment and client-level outcomes is from 61 clients at Comprehend, Inc. who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[95]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Comprehend, Inc. was 13.7 days (5 – 19 days). All three callers who spoke to staff members were screened for pregnancy and opioid/injection drug use, and one caller (33.3%) was screened for incarceration. None of the staff persons offered information/services to callers while they were waiting for the appointment. Callers gave an average rating of 7.0 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 14)

78.6%

Finding transportation to and from the facility

71.4%

Some clients not taking recovery seriously which makes it difficult for other clients

64.3%

Cost of treatment

64.3%

Time conflicts (e.g. childcare, work schedule)

57.1%

Distance and commute time

[93] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Comprehend, Inc.: 3 during normal business hours, and 2 after hours calls.

[94] Data from 14 staff members at Comprehend, Inc. was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[95] Data was collected from 61 clients who entered SUD treatment in Comprehend, Inc. and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 14)

92.9% Cognitive behavioral therapy

85.7% Motivational interviewing

71.4% Peer support specialists

71.4% Matrix model

64.3% Mindfulness-based relapse prevention

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 14)

	Most commonly reported	Least commonly reported
Services		
Mental health services	100%	
Telemedicine/telehealth	100%	
Individual counseling	100%	
Family counseling	100%	
Provide childcare services		7.1%
Offer medical detoxification		7.1%
Resource supports		
Case management or linking to resources for basic needs	100%	
Help clients access health insurance	92.9%	
Help clients get ID or birth certificate	85.7%	
Help with criminal legal issues		14.3%
Help with civil legal issues		14.3%
Test for hepatitis C, HIV, and STDs		7.1%
Discharge planning		
Discharge planning	100%	
Perform exit assessment for recovery needs	64.3%	
Perform exit assessment with individuals who have dropped out		21.4%

Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients gave a high rating of the treatment program (n = 61)[96]

8.7

Average rating of program
[1 = Worst, 10 = Best]

Client-level outcomes

Demographics of Comprehend, Inc. clients followed up in KTOS

More than half of the 61 clients were female (52.5%), most clients were White (93.4%), and 6.6% were Black/African American. More than half (58.3%) reported living in a non-metropolitan county, 30.0% lived in a metropolitan county, and 11.7% in a very rural county. The average age of clients was 34.1 years old.

[96] The perception of care items were changed multiple times during the period. Only four individuals completed the most up-to-date version of the perception of care questions. Thus, only the overall rating of treatment is presented for the 61 followed-up clients because this item was included on all versions.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 61)[97]

Any illegal drug use***

55.7% Intake | **16.4%** Follow-up

Opioid (including heroin) use***

29.5% Intake | **6.6%** Follow-up

Methamphetamine use

8.2% Intake | **3.3%** Follow-up

Problem alcohol use***

50.8% Intake | **16.4%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 59)

62.7% Intake | **20.3%** Follow-up

***p < .001

No significant changes in past-12-month mental health and physical health problems (n = 61)

Depression or generalized anxiety

41.0% Intake | **29.5%** Follow-up

Suicidality

9.8% Intake | **3.3%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days

4.4 Intake | **3.2** Follow-up

[97] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Change in other targeted factors from intake to follow-up

Significant reduction in criminal justice system involvement (n = 61)

Employed full-time or part-time

63.9% Intake | **62.3%** Follow-up

Homelessness

8.2% Intake | **0.0%** Follow-up

Difficulty meeting basic needs

37.7% Intake | **31.1%** Follow-up

Arrest or incarcerated***

68.9% Intake | **26.2%** Follow-up

***p < .001

Significant improvement in subjective quality of life[98]

Attended mutual help recovery group meetings (n = 61)

19.7% Intake | **19.7%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible] (n = 28)*

7.4 Intake | **8.3** Follow-up

*p < .05

Significant improvement in multidimensional recovery[99]

Had all positive dimensions of recovery* (n = 28)

21.4% Intake | **46.4%** Follow-up

*p < .05

[98] The item about quality of life was added in June 2015.

[99] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 14):

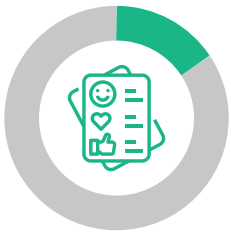
21.4%
Wait time from clients' first contact to assessment

14.3%
Number of clients who enter the program

14.3%
Number of clients who drop out

14.3%
Percent of clients who attend treatment for 30 days or longer

14.3%
Clients' use of recovery support services



14.3%
Obtain feedback from clients about the program

7.1%
Clients' status and progress after leaving the program (systematically)

The five most frequently staff-reported organizational challenges (n = 14)

100%
High caseload

100%
Burnout among staff

100%
Staff shortages

85.7%
The job is demanding but staff person has little control over decision making

85.7%
The job is high effort with low reward

Staff members have moderately high job satisfaction (n = 14)

3.4
Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Comprehend, Inc.: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Cumberland River Behavioral Health

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Cumberland River Behavioral Health is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Cumberland River Behavioral Health is from a secret shopper study (n = 5).[100] Information about barriers to treatment, services provided, and organizational factors is from a survey with 27 providers who work with clients with SUD at Cumberland River Behavioral Health.[101] Findings about clients' perceptions of treatment and client-level outcomes is from 939 clients at Cumberland River Behavioral Health who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[102]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Cumberland River Behavioral Health for 2 callers who received an appointment was 8.5 days (2 – 15 days). None of the three callers (0.0%) who spoke with staff members were screened for pregnancy, recent incarceration, or opioid/injection drug use. None of the three staff persons who spoke to callers offered information/services to them while waiting for the appointment. Callers gave an average rating of 7.0 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 27)

85.2%
Concern about separation from children or other people

70.4%
Lack of family or social support for recovery

66.7%
Some clients not taking recovery seriously which makes it difficult for other clients

59.3%
Limits imposed by insurance

51.9%
Clients having severe mental health problems

[100] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Cumberland River Behavioral Health: 3 during normal business hours, and 2 after hours calls.

[101] Data from 27 staff members at Cumberland River Behavioral Health was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[102] Data was collected from 939 clients who entered SUD treatment in Cumberland River Behavioral Health and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 27)

96.3% Cognitive behavioral therapy

81.5% Motivational interviewing

77.8% Relapse prevention services

77.8% Peer support specialists

55.6% Matrix model

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 27)

	Most commonly reported	Least commonly reported
Services		
Mental health services	96.3%	
Individual counseling	96.3%	
Telemedicine/telehealth	92.6%	
Provide childcare services		14.8%
Offer medical detoxification		7.4%
Resource supports		
Case management or linking to resources for basic needs	100%	
Help clients access health insurance	85.2%	
Transportation assistance	77.8%	
Help with civil legal issues		29.6%
Help with criminal legal issues		29.6%
Discharge planning		
Discharge planning	100%	
Perform exit assessment for recovery needs	85.2%	
Perform exit assessment with individuals who have dropped out		66.7%

Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[103, 104]

8.2

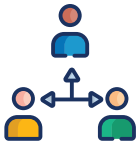
Average rating of program

[1 = Worst, 10 = Best, n = 926]

6.1%, Not at all
14.9%, Somewhat
28.1%, Pretty well
50.9%, Extremely well

How well treatment worked for client

(among individuals who were asked the question, n =442)



88.3%

Client would refer a close friend or relative to this provider

[% Yes, n = 444]

8.4

Shared decision-making between client and staff

[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 411]

8.6

Respect shown to client

[0 = Low, 10 = high rating for "staff believed in client", n = 412]

8.0

Communication between staff and client

[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 414]

8.3

Therapeutic alliance

[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 410]

8.2

Perceived effectiveness of treatment

[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 410]

[103] Thirteen individuals had missing values for overall rating of the program.

[104] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of Cumberland River Behavioral Health clients followed up in KTOS

The majority of the 939 clients were male (60.9%) and most clients were White (96.7%), with 2.1% being Black/African American. More than three-fourths of clients (78.0%) reported living in a non-metropolitan county, 15.0% lived in a very rural county, and 7.1% in a metropolitan county. The average age of clients was 34.7 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 922)[105, 106]

Any illegal drug use*** (n = 917)

85.6% Intake | **30.5%** Follow-up

Opioid (including heroin) use***

61.2% Intake | **15.7%** Follow-up

Methamphetamine use***

42.1% Intake | **7.3%** Follow-up

Problem alcohol use*** (n = 921)

30.4% Intake | **11.1%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 917)

74.4% Intake | **25.3%** Follow-up

***p < .001

[105] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[106] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems[107]

Depression or generalized anxiety*** (n = 931)

53.9% Intake | **34.2%** Follow-up

Suicidality*** (n = 937)

14.3% Intake | **7.7%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 931)

5.1 Intake | **3.1** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[108, 109]

Employed full-time or part-time (n = 930)

54.9% Intake | **56.3%** Follow-up

Homelessness*** (n = 937)

20.6% Intake | **5.4%** Follow-up

Difficulty meeting basic needs*** (n = 932)

41.7% Intake | **34.9%** Follow-up

Arrest or incarcerated*** (n = 929)

76.7% Intake | **40.4%** Follow-up

Significant improvement in recovery support and subjective quality of life[110, 111]

Attended mutual help recovery group meetings*** (n = 937)

36.9% Intake | **55.1%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 784)

6.6 Intake | **8.0** Follow-up

***p < .001

[107] Eight individuals did not answer items at follow-up about depression and/or anxiety, two individuals had missing data for suicidality, and eight individuals had missing data for number of days poor health limited daily activities.

[108] Nine individuals had missing data for usual employment status at follow-up.

[109] Ten individuals had missing values for arrest or incarceration at follow-up.

[110] Two individuals had missing values for mutual help recovery meetings at follow-up.

[111] The item about quality of life was added in June 2015

Significant improvement in multidimensional recovery (n = 744)[112]

Had all positive dimensions of recovery***

5.0% Intake | **33.9%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 27):

33.3%
Number of clients who enter the program

25.9%
Wait time from clients' first contact to assessment

25.9%
Clients' use of recovery support services

22.2%
Obtain feedback from clients about the program

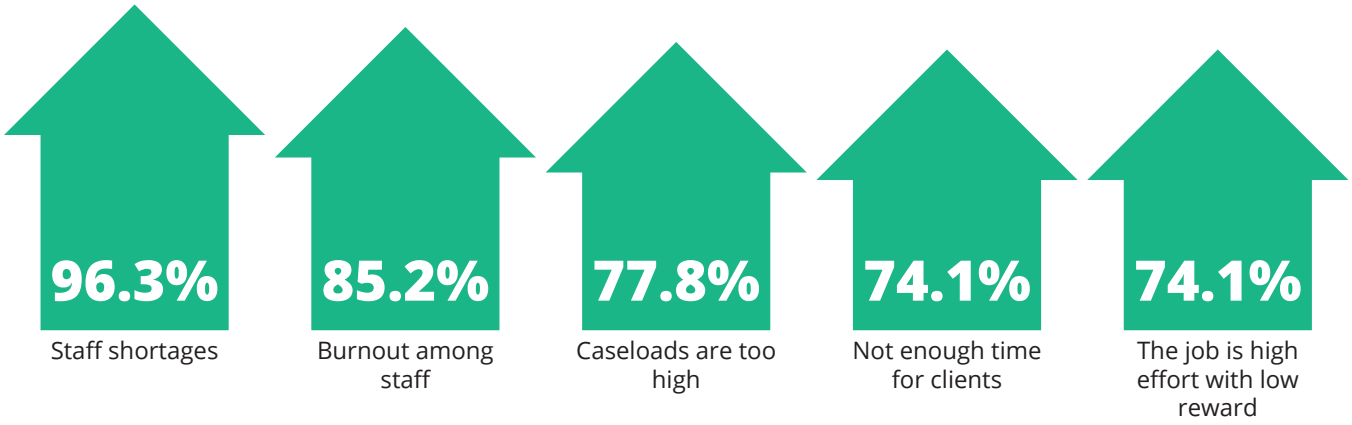
18.5%
Percent of clients who attend treatment for 30 days or longer

18.5%
Number of clients who drop out

14.8%
Clients' status and progress after leaving the program (systematically)

[112] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 27)



Staff members have moderately high job satisfaction (n = 27)

3.9 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Cumberland River Behavioral Health : Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Four Rivers Behavioral Health

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Four Rivers Behavioral Health is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Four Rivers Behavioral Health is from a secret shopper study (n = 5).[113] *Information about barriers to treatment, services provided, and organizational factors is from a survey with 55 providers who work with clients with SUD at Four Rivers Behavioral Health.*[114] *Findings about clients' perceptions of treatment and client-level outcomes is from 392 clients at Four Rivers Behavioral Health who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).*[115]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Four Rivers Behavioral Health was 3 days (1 – 7 days). All staff members (100%) screened the callers for pregnancy, incarceration, and opioid/injection drug use. Two of the three staff persons who spoke to callers offered information/services (only the agency crisis line) to them while waiting for the appointment. Callers gave an average rating of 8.3 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 55)

65.5%
Cost of treatment

63.6%
Separation from children or other people

63.6%
Some clients not taking recovery seriously which makes it difficult for other clients

54.5%
Limits imposed by insurance

52.7%
Lack of insurance coverage

[113] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Four Rivers Behavioral Health: 3 during normal business hours, and 2 after hours calls.

[114] Data from staff members at Four Rivers Behavioral Health was collected in a larger study of providers in all CMHCs in Kentucky. Surveys (n = 55) were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[115] Data was collected from 392 clients who entered SUD treatment in Four Rivers Behavioral Health and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 55)

80.0% Cognitive behavioral therapy

78.2% Relapse prevention services

76.4% Peer support specialists

74.5% Motivational interviewing

56.4% Mindfulness-based relapse prevention

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 55)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	**96.4%**	
Mental health services	**92.7%**	
Telemedicine/telehealth	**85.5%**	
Offer medical detoxification		**21.8%**
Provide childcare services		**20.0%**
Resource supports		
Case management or linking to resources for basic needs	**90.9%**	
Help clients access health insurance	**89.1%**	
Help clients get an ID or birth certificate	**80.0%**	
Help with criminal legal issues		**49.1%**
Help with civil legal issues		**47.3%**
Discharge planning		
Discharge planning	**96.4%**	
Perform exit assessment for recovery needs	**87.3%**	
Perform exit assessment with individuals who have dropped out		**74.5%**

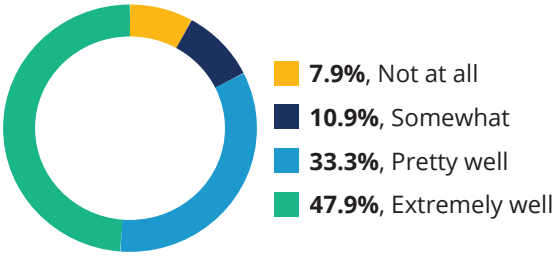
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

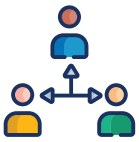
Clients had largely favorable perceptions of the treatment program[116, 117]

8.1

Average rating of program
[1 = Worst, 10 = Best, n = 386]



How well treatment worked for client
(among individuals who were asked the question, n = 167)



88.6%

Client would refer a close friend or relative to this provider
[% Yes, n = 167]

8.4

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 158]

8.6

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 159]

8.3

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 158]

8.4

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 159]

8.1

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 156]

[116] Six individuals had missing values for overall rating of the program.

[117] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of Four Rivers Behavioral Health clients followed up in KTOS

More than half of the 392 clients were male (53.6%), most clients were White (89.8%), and 5.9% were Black/African American. The majority of clients (81.7%) reported living in a non-metropolitan county and 12.6% in a very rural county. The average age of clients was 34.8 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 380)[118, 119]

Any illegal drug use***

81.1% Intake | **28.9%** Follow-up

Opioid (including heroin) use***

41.6% Intake | **10.0%** Follow-up

Methamphetamine use***

33.4% Intake | **7.1%** Follow-up

Problem alcohol use*** (n = 376)

49.2% Intake | **16.2%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 382)

70.4% Intake | **22.8%** Follow-up

Significant reductions in past-12-month mental health and physical health problems (n = 390)[120]

Depression or generalized anxiety***

62.6% Intake | **36.4%** Follow-up

Suicidality***

15.1% Intake | **6.7%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 386)

7.4 Intake | **3.1** Follow-up

***p < .001

[118] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[119] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

[120] Two individuals did not answer items at follow-up about depression, anxiety, and suicidality, and six individuals had missing values for number of days poor health limited daily activities at follow-up.

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[121]

Employed full-time or part-time (n = 390)

62.1% Intake | **60.3%** Follow-up

Homelessness*** (n = 392)

25.0% Intake | **4.3%** Follow-up

Difficulty meeting basic needs*** (n = 389)

54.2% Intake | **37.3%** Follow-up

Arrest or incarcerated*** (n = 383)

70.2% Intake | **40.7%** Follow-up

Significant improvement in recovery support and subjective quality of life[122, 123]

Attended mutual help recovery group meetings*** (n = 388)

37.4% Intake | **55.7%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 328)

5.8 Intake | **7.9** Follow-up

Significant improvement in multidimensional recovery[124]

Had all positive dimensions of recovery*** (n = 315)

4.4% Intake | **38.1%** Follow-up

***p < .001

[121] Nine individuals had missing values for arrest or incarceration at follow-up.

[122] Four individuals had missing values for mutual help recovery meetings at follow-up and six had missing values for number of individuals who provided recovery support at follow-up.

[123] The item about quality of life was added in June 2015

[124] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 55)

47.3%
Number of clients who enter the program

41.8%
Wait time from clients' first contact to assessment

36.4%
Obtain feedback from clients about the program

30.9%
Clients' use of recovery support services

30.9%
Percent of clients who attend treatment for 30 days or longer

27.3%
Number of clients who drop out

20.0%
Clients' status and progress after leaving the program (systematically)

The five most frequently staff-reported organizational challenges (n = 55)

Staff members have high job satisfaction (n = 55)

4.2
Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., Scrivner, A. et al. (2023). *Substance use disorder treatment in Four Rivers Behavioral Health: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Kentucky River Community Care

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Kentucky River Community Care is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Kentucky River Community Care is from a secret shopper study (n = 5).[125] Information about barriers to treatment, services provided, and organizational factors is from a survey with 32 providers who work with clients with SUD at Kentucky River Community Care.[126] Findings about clients' perceptions of treatment and client-level outcomes is from 745 clients at Kentucky River Community Care who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[127]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Kentucky River Community Care was 15.7 days (3 – 35 days). None of the three callers (0.0%) who spoke with staff members were screened for pregnancy, whereas one caller (33.3%) was screened for incarceration and opioid/injection drug use. None of the three staff persons who spoke to callers offered information/services to them while waiting for the appointment. Callers gave an average rating of 7.7 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 32)

78.1%
Lack of family or social support for recovery

65.6%
Some clients not taking recovery seriously which makes it difficult for other clients

65.6%
Time conflicts (e.g. childcare, work schedule)

62.5%
Finding transportation to and from the facility

53.1%
Cost of treatment

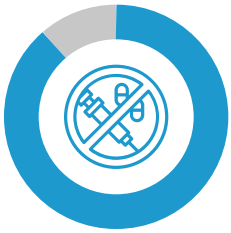
[125] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Kentucky River Community Care : 3 during normal business hours, and 2 after hours calls.

[126] Data from 32 staff members at Kentucky River Community Care was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[127] Data was collected from 745 clients who entered SUD treatment in Kentucky River Community Care and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 32)



87.5%
Relapse prevention services

87.5%
Peer support specialists

87.5%
Seeking safety

87.5%
Motivational interviewing

84.4%
Cognitive behavioral therapy

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 32)

	Most commonly reported	Least commonly reported
Services		
Mental health services	100%	
Telemedicine/telehealth	96.9%	
Individual counseling	96.9%	
Provide childcare services		18.8%
Offer medical detoxification		3.1%
Resource supports		
Case management or linking to resources for basic needs	96.9%	
Help clients access health insurance	96.9%	
Help clients get an ID or birth certificate	93.8%	
Having housing options as part of the program	90.6%	
Help with civil legal issues		34.4%
Test for hepatitis C, HIV, and STDs		9.4%
Discharge planning		
Discharge planning	100%	
Perform exit assessment for recovery needs	96.9%	
Perform exit assessment with individuals who have dropped out		65.6%

Clients' Perceptions of Treatment

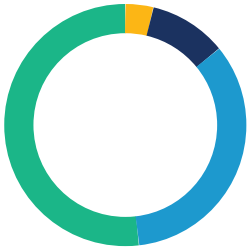
Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[128, 129]

8.4

Average rating of program

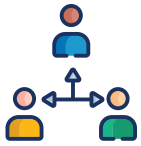
[1 = Worst, 10 = Best, n = 736]



3.0%, Not at all
12.5%, Somewhat
33.6%, Pretty well
50.9%, Extremely well

How well treatment worked for client

(among individuals who were asked the question, n = 232)



89.7%

Client would refer a close friend or relative to this provider

[% Yes, n = 234]

8.6

Shared decision-making between client and staff

[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 220]

8.9

Respect shown to client

[0 = Low, 10 = high rating for "staff believed in client", n = 219]

8.0

Communication between staff and client

[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 219]

8.6

Therapeutic alliance

[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 220]

8.5

Perceived effectiveness of treatment

[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 219]

[128] Nine individuals had missing values for overall rating of the program.

[129] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of Kentucky River Community Care clients followed up in KTOS

More than half of the 745 clients were male (58.0%), and almost all clients were White (98.9%). The majority of clients (60.5%) reported living in a very rural county, 38.0% in a non-metropolitan county, and 1.5% lived in a metropolitan county. The average age of clients was 36.0 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 731)[130, 131]

Any illegal drug use***

75.1% Intake | **30.9%** Follow-up

Opioid (including heroin) use***

52.9% Intake | **14.6%** Follow-up

Methamphetamine use***

16.7% Intake | **3.6%** Follow-up

Problem alcohol use***

29.3% Intake | **10.8%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 707)

71.3% Intake | **22.3%** Follow-up

***p < .001

[130] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[131] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems[132]

Depression or generalized anxiety*** (n = 742)

53.2% Intake | **43.7%** Follow-up

Suicidality*** (n = 743)

10.5% Intake | **4.8%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 736)

6.4 Intake | **4.3** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness and criminal justice system involvement[133, 134]

Employed full-time or part-time (n = 735)

36.2% Intake | **35.9%** Follow-up

Homelessness*** (n = 742)

16.4% Intake | **6.5%** Follow-up

Difficulty meeting basic needs (n = 739)

40.5% Intake | **41.0%** Follow-up

Arrest or incarcerated*** (n = 734)

64.3% Intake | **30.2%** Follow-up

***p < .001

Significant improvement in recovery support and subjective quality of life[135, 136]

Attended mutual help recovery group meetings*** (n = 739)

16.5% Intake | **38.0%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 540)

6.6 Intake | **7.6** Follow-up

***p < .001

[132] Two individuals did not answer items at follow-up about depression, anxiety, and three individuals had missing data for suicidality, and nine individuals had missing data for number of days poor health limited daily activities.

[133] Nine individuals had missing data for usual employment status at follow-up.

[134] Eleven individuals had missing values for arrest or incarceration at follow-up.

[135] Two individuals had missing values for mutual help recovery meetings at follow-up.

[136] The item about quality of life was added in June 2015

Significant improvement in multidimensional recovery (n = 492)[137]

Had all positive dimensions of recovery***

6.5% Intake | **31.3%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 32):

34.4%
Wait time from clients' first contact to assessment

31.3%
Number of clients who enter the program

28.1%
Number of clients who drop out

28.1%
Clients' use of recovery support services

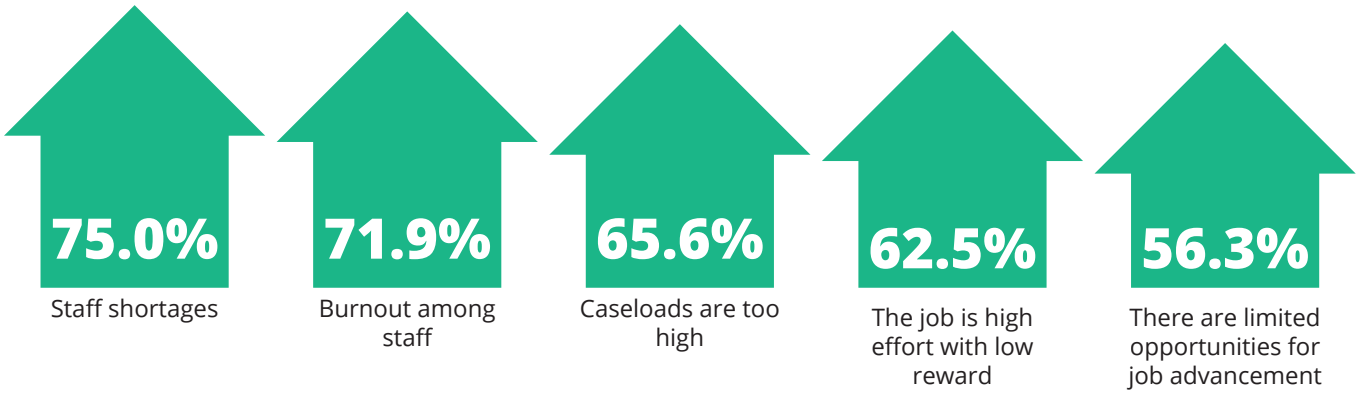
25.0%
Obtain feedback from clients about the program

25.0%
Clients' status and progress after leaving the program (systematically)

21.9%
Percent of clients who attend treatment for 30 days or longer

[137] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 32)



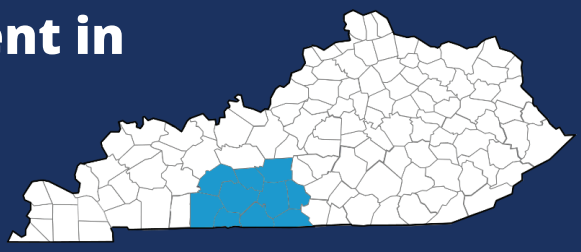
Staff members have moderately high job satisfaction (n = 32)

3.8 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Kentucky River Community Care : Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in LifeSkills, Inc.

Profile of Selected Key Performance Indicators



A brief profile of performance indicators for substance use disorder (SUD) treatment in LifeSkills, Inc. is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at LifeSkills, Inc. is from a secret shopper study (n = 5).[138] Information about barriers to treatment, services provided, and organizational factors is from a survey with 27 providers who work with clients with SUD at LifeSkills, Inc.[139] Findings about clients' perceptions of treatment and client-level outcomes is from 1,315 clients at LifeSkills, Inc. who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[140]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at LifeSkills, Inc. was 2.0 days (0 - 4 days). Two of three callers who spoke with staff members were screened for pregnancy and opioid/injection drug use, and one of three callers who spoke with staff members was screened for incarceration. None of the staff persons offered information/services to callers while they were waiting for the appointment. Callers gave an average rating of 9.3 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 27)

74.1%

Clients having severe mental health problems

74.1%

Some clients not taking recovery seriously which makes it difficult for other clients

70.4%

Lack of family or social support for recovery

66.7%

Lack of insurance coverage

59.3%

Finding transportation to and from the facility

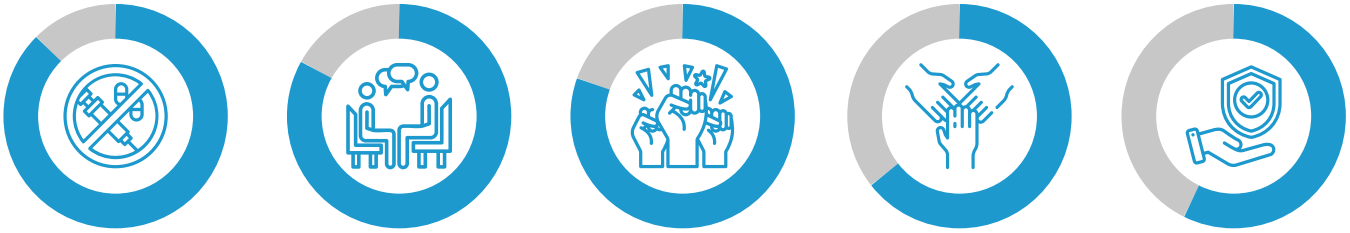
[138] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to LifeSkills, Inc.: 3 during normal business hours, and 2 after hours calls.

[139] Data from 27 staff members at LifeSkills, Inc. was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[140] Data was collected from 1,315 clients who entered SUD treatment in LifeSkills, Inc. and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 27)



88.9% Relapse prevention services

85.2% Cognitive behavioral therapy

81.5% Motivational interviewing

63.0% Peer support specialists

59.3% Seeking safety

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 27)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	100%	
Telemedicine/telehealth	100%	
Mental health services	96.3%	
Family counseling	92.6%	
Offer medical detoxification		25.9%
Provide childcare services		18.5%
Resource supports		
Help clients access health insurance	100%	
Case management or linking to resources for basic needs	96.3%	
Have housing options as part of the program	81.5%	
Help clients get an ID or birth certificate	81.5%	
Help with civil legal issues		40.7%
Help with criminal legal issues		37.0%
Discharge planning		
Discharge planning	96.3%	
Perform exit assessment for recovery needs	85.2%	
Perform exit assessment with individuals who have dropped out		70.4%

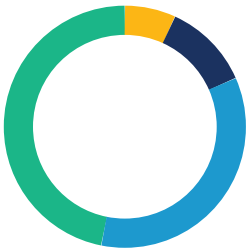
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[141, 142]

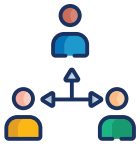
8.5

Average rating of program
[1 = Worst, 10 = Best, n = 1,284]



How well treatment worked for client
(among individuals who were asked the question, n = 741)

- **5.9%**, Not at all
- **11.5%**, Somewhat
- **34.8%**, Pretty well
- **47.8%**, Extremely well



92.2%

Client would refer a close friend or relative to this provider
[% Yes, n = 743]

8.5

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 617]

8.7

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 618]

8.2

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 617]

8.5

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 614]

8.4

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 615]

[141] Thirty-one individuals had missing values for overall rating of the program.

[142] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of LifeSkills, Inc. clients followed up in KTOS

More than half of the 1,315 clients were male (55.4%), most clients were White (85.7%) and 10.5% were Black/African American. A little less than one-half (45.8%) reported living in a non-metropolitan county, 37.3% lived in a metropolitan county, and 16.9% in a very rural county. The average age of clients was 35.2 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 1,291)[143, 144]

Any illegal drug use***

81.6% Intake | **31.6%** Follow-up

Opioid (including heroin) use***

31.1% Intake | **8.3%** Follow-up

Methamphetamine use*** (n = 1,289)

47.5% Intake | **8.7%** Follow-up

Problem alcohol use*** (n = 1,287)

44.9% Intake | **14.8%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 1,280)

75.6% Intake | **23.4%** Follow-up

***p < .001

[143] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[144] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems[145]

Depression or generalized anxiety*** (n = 1,300)

60.6% Intake | **39.1%** Follow-up

Suicidality*** (n = 1,307)

18.2% Intake | **9.4%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 1,304)

6.5 Intake | **3.8** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[146, 147, 148, 149]

Employed full-time or part-time** (n = 1,300)

65.6% Intake | **61.5%** Follow-up

Homelessness*** (n = 1,312)

24.2% Intake | **5.7%** Follow-up

Difficulty meeting basic needs*** (n = 1,293)

48.3% Intake | **38.4%** Follow-up

Arrest or incarcerated*** (n = 1,304)

72.5% Intake | **38.7%** Follow-up

**p < .01, ***p < .001

Significant improvement in recovery support and subjective quality of life[150, 151]

Attended mutual help recovery group meetings*** (n = 1,303)

39.0% Intake | **45.3%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 1,154)

6.6 Intake | **7.7** Follow-up

***p < .001

[145] Two individuals did not answer items at follow-up about depression, anxiety, and three individuals had missing data for suicidality, and nine individuals had missing data for number of days poor health limited daily activities.

[146] Three individuals had missing values for homelessness at follow-up.

[147] Fifteen individuals had missing values for usual employment status at follow-up.

[148] Twenty-two individuals had missing values for at least one of the items in the difficulty meeting basic needs scale at follow-up.

[149] Eleven individuals had missing values for arrest or incarceration at follow-up.

[150] Twelve individuals had missing values for mutual help recovery meetings at follow-up.

[151] The item about quality of life was added in June 2015

Significant improvement in multidimensional recovery (n = 1,101)[152]

Had all positive dimensions of recovery***

5.2% Intake | **36.5%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 27):

44.4%
Number of clients who enter the program

44.4%
Wait time from clients' first contact to assessment

33.3%
Percent of clients who attend treatment for 30 days or longer

33.3%
Obtain feedback from clients about the program

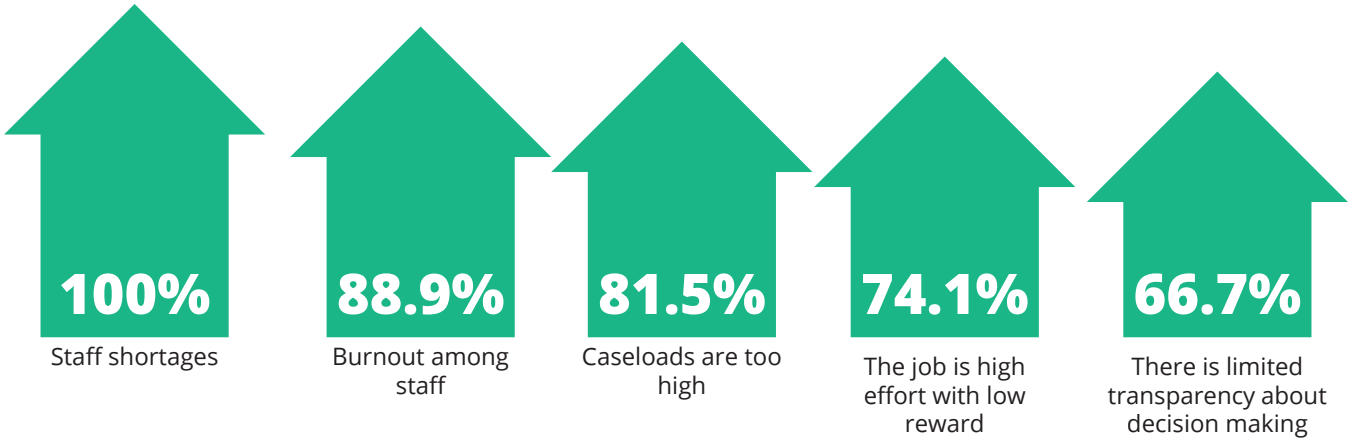
29.6%
Clients' use of recovery support services

29.6%
Number of clients who drop out

22.2%
Clients' status and progress after leaving the program (systematically)

[152] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 27)



Staff members have moderately high job satisfaction (n = 27)

3.7

Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in LifeSkills, Inc.: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Mountain Comprehensive Care Center

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Mountain Comprehensive Care Center is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Mountain Comprehensive Care Center is from a secret shopper study (n = 5).[153] Information about barriers to treatment, services provided, and organizational factors is from a survey with 100 providers who work with clients with SUD at Mountain Comprehensive Care Center.[154] Findings about clients' perceptions of treatment and client-level outcomes is from 546 clients at Mountain Comprehensive Care Center who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[155]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Mountain Comprehensive Care Center was 21 days (21 days for both callers who received an appointment). One caller was unable to make an appointment because of a problem with their social security number. Neither of the three callers (0.0%) who spoke with staff members were screened for pregnancy, incarceration, or opioid/injection drug use. None of the three staff persons who spoke to callers offered information/services to them while waiting for the appointment. Callers gave an average rating of 7.0 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 100)

72.0%

Some clients not taking recovery seriously which makes it difficult for other clients

67.0%

Concern about separation from children or other people

59.0%

Lack of family or social support for recovery

53.0%

Limits imposed by insurance

50.0%

Cost of treatment

[153] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Mountain Comprehensive Care Center: 3 during normal business hours, and 2 after hours calls.

[154] Data from 100 staff members at Mountain Comprehensive Care Center was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[155] Data was collected from 546 clients who entered SUD treatment in Mountain Comprehensive Care Center and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 100)

88.0% Relapse prevention services

86.0% Peer support specialists

84.0% Cognitive behavioral therapy

76.0% Seeking safety

75.0% Motivational interviewing

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 100)

	Most commonly reported	Least commonly reported
Services		
Telemedicine/telehealth	**91.0%**	
Mental health services	**86.0%**	
Individual counseling	**86.0%**	
Offer medical detoxification		**30.0%**
Provide childcare services		**27.0%**
Resource supports		
Case management or linking to resources for basic needs	**91.0%**	
Help clients access health insurance	**86.0%**	
Help clients get an ID or birth certificate	**84.0%**	
Help with criminal legal issues		**32.0%**
Help with civil legal issues		**31.0%**
Discharge planning		
Discharge planning	**91.0%**	
Perform exit assessment for recovery needs	**88.0%**	
Perform exit assessment with individuals who have dropped out		**68.0%**

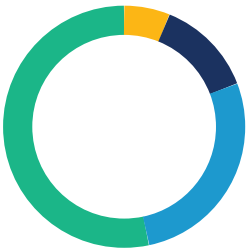
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[156, 157]

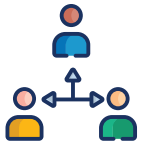
8.3

Average rating of program
[1 = Worst, 10 = Best, n = 537]



5.4%, Not at all
12.0%, Somewhat
30.2%, Pretty well
52.4%, Extremely well

How well treatment worked for client
(among individuals who were asked the question, n = 410)



89.8%

Client would refer a close friend or relative to this provider
[% Yes, n = 411]

8.6

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 375]

8.8

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 376]

7.9

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 376]

8.6

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 375]

8.3

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 372]

[156] Nine individuals had missing values for overall rating of the program.

[157] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of Mountain Comprehensive Care Center clients followed up in KTOS

More than half of the 546 clients were female (65.0%), most clients were White (96.7%), and 1.6% were Black/African American. The majority of clients (63.6%) reported living in a non-metropolitan county, 22.5% lived in a very rural county, and 13.8% lived in a metropolitan county. The average age of the clients was 34.3 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 536)[158, 159]

Any illegal drug use***

90.1% Intake | **34.1%** Follow-up

Opioid (including heroin) use***

65.9% Intake | **17.9%** Follow-up

Methamphetamine use***

43.0% Intake | **12.1%** Follow-up

Problem alcohol use***

31.8% Intake | **11.9%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 528)

81.6% Intake | **30.7%** Follow-up

***p < .001

[158] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[159] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems (n = 544)[160]

Depression or generalized anxiety***

72.1% Intake | **50.9%** Follow-up

Suicidality***

20.8% Intake | **9.2%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 540)

9.8 Intake | **4.5** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement (n = 540)[161]

Employed full-time or part-time

35.4% Intake | **38.0%** Follow-up

Homelessness***

31.1% Intake | **9.6%** Follow-up

Difficulty meeting basic needs*** (n = 536)

54.7% Intake | **41.0%** Follow-up

Arrest or incarcerated*** (n = 543)

61.5% Intake | **36.3%** Follow-up

***p < .001

Significant improvement in recovery support and subjective quality of life[162, 163]

Attended mutual help recovery group meetings*** (n = 544)

29.0% Intake | **49.8%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 519)

6.3 Intake | **7.7** Follow-up

***p < .001

[160] Two individuals did not answer items at follow-up about depression, anxiety, and suicidality, and six individuals had missing data for number of days poor health limited daily activities.

[161] Three individuals had missing values for arrest or incarceration at follow-up.

[162] Two individuals had missing values for mutual help recovery meetings at follow-up.

[163] The item about quality of life was added in June 2015

Significant improvement in multidimensional recovery (n = 491)[164]

Had all positive dimensions of recovery***

5.1% Intake | **32.0%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 100):

39.0%
Number of clients who enter the program

28.0%
Number of clients who drop out

27.0%
Obtain feedback from clients about the program

24.0%
Wait time from clients' first contact to assessment

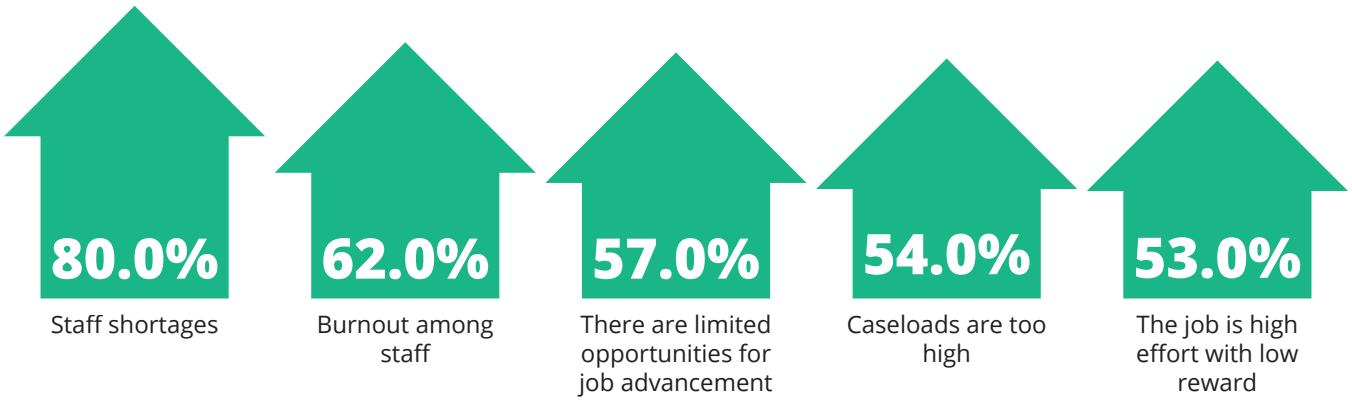
23.0%
Clients' use of recovery support services

20.0%
Percent of clients who attend treatment for 30 days or longer

17.0%
Clients' status and progress after leaving the program (systematically)

[164] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 100)



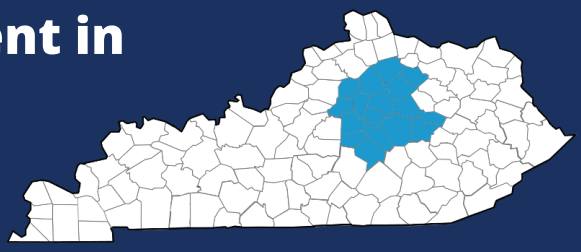
Staff members have high job satisfaction (n = 100)

4.1 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Mountain Comprehensive Care Center: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in New Vista

Profile of Selected Key Performance Indicators



A brief profile of performance indicators for substance use disorder (SUD) treatment in New Vista is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at New Vista is from a secret shopper study (n = 5).[165] Information about barriers to treatment, services provided, and organizational factors is from a survey with 43 providers who work with clients with SUD at New Vista.[166] Findings about clients' perceptions of treatment and client-level outcomes is from 863 clients at New Vista who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[167]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at New Vista was 3.0 days (1 - 7 days). Three of the four callers (75.0%) who spoke with staff members were screened for pregnancy, all (100%) were screened for opioid/injection drug use, and none (0.0%) were screened for incarceration. One of the four staff persons who spoke to callers offered information/services (only the agency crisis line) to them while waiting for the appointment. Callers gave an average rating of 8.0 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 43)

67.4%
Concern about separation from children or other people

65.1%
Some clients not taking recovery seriously which makes it difficult for other clients

62.8%
Lack of family or social support for recovery

58.1%
Limits imposed by insurance

58.1%
Time conflicts (e.g. childcare, work schedule)

[165] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to New Vista: 3 during normal business hours, and 2 after hours calls.

[166] Data from 43 staff members at New Vista was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[167] Data was collected from 863 clients who entered SUD treatment in New Vista and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 43)

95.3% Cognitive behavioral therapy

93.0% Relapse prevention services

90.7% Motivational interviewing

88.4% Peer support specialists

79.1% Seeking safety

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 43)

	Most commonly reported	Least commonly reported
Services		
Mental health services	100%	
Individual counseling	97.7%	
Medications to treat addiction	95.3%	
Offer medical detoxification		16.3%
Provide childcare services		2.3%
Resource supports		
Test for hepatitis C, HIV, and STDs	95.3%	
Case management or linking to resources for basic needs	93.0%	
Transportation assistance	90.7%	
Help clients access health insurance	86.0%	
Help with criminal legal issues		37.2%
Help with civil legal issues		37.2%
Discharge planning		
Discharge planning	95.3%	
Perform exit assessment for recovery needs	79.1%	
Perform exit assessment with individuals who have dropped out		58.1%

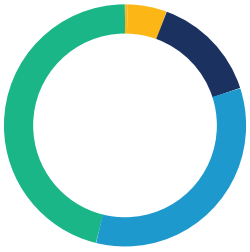
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[168, 169]

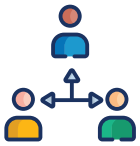
8.3

Average rating of program
[1 = Worst, 10 = Best, n = 852]



How well treatment worked for client
(among individuals who were asked the question, n = 367)

- **6.0%**, Not at all
- **14.7%**, Somewhat
- **33.2%**, Pretty well
- **46.0%**, Extremely well



90.5%

Client would refer a close friend or relative to this provider
[% Yes, n = 367]

8.7

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 333]

8.7

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 332]

8.3

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 334]

8.5

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 332]

8.3

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 333]

[168] Eleven individuals had missing values for overall rating of the program.

[169] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of New Vista clients followed up in KTOS

More than half of the 863 clients were female (58.2%), most clients were White (87.8%), 8.1% were Black/African American. About half of clients (49.8%) reported living in a metropolitan county, 47.0% lived in a non-metropolitan county, and 3.2% in a very rural county. The average age of clients was 34.7 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use[170, 171]

Any illegal drug use*** (n = 839)

83.4% Intake | **35.6%** Follow-up

Opioid (including heroin) use*** (n = 844)

53.4% Intake | **16.0%** Follow-up

Methamphetamine use*** (n = 841)

26.4% Intake | **5.5%** Follow-up

Problem alcohol use*** (n = 844)

45.1% Intake | **17.5%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 839)

74.7% Intake | **26.2%** Follow-up

***p < .001

[170] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[171] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems[172]

Depression or generalized anxiety*** (n = 861)

72.8% Intake | **45.5%** Follow-up

Suicidality*** (n = 863)

24.5% Intake | **10.2%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days*** (n = 857)

9.4 Intake | **3.8** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[173, 174, 175]

Employed full-time or part-time (n = 860)

61.2% Intake | **61.7%** Follow-up

Homelessness*** (n = 863)

26.3% Intake | **7.5%** Follow-up

Difficulty meeting basic needs*** (n = 857)

57.1% Intake | **41.9%** Follow-up

Arrest or incarcerated*** (n = 855)

58.2% Intake | **33.8%** Follow-up

***p < .001

Significant improvement in recovery support and subjective quality of life[176, 177]

Attended mutual help recovery group meetings*** (n = 861)

36.9% Intake | **47.3%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 622)

6.2 Intake | **7.7** Follow-up

***p < .001

[172] Two individuals did not answer items at follow-up about depression and/or anxiety and six individuals had missing data for number of days poor health limited daily activities.

[173] Three individuals had missing data for usual employment status at follow-up.

[174] Six individuals had missing data for difficulty meeting basic needs at follow-up.

[175] Eight individuals had missing values for arrest or incarceration at follow-up.

[176] Two individuals had missing values for mutual help recovery meetings at follow-up.

[177] The item about quality of life was added in June 2015

Significant improvement in multidimensional recovery (n = 604)[178]

Had all positive dimensions of recovery***

7.1% Intake | **34.3%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 43):

55.8%
Number of clients who enter the program

37.2%
Percent of clients who attend treatment for 30 days or longer

37.2%
Number of clients who drop out

32.6%
Wait time from clients' first contact to assessment

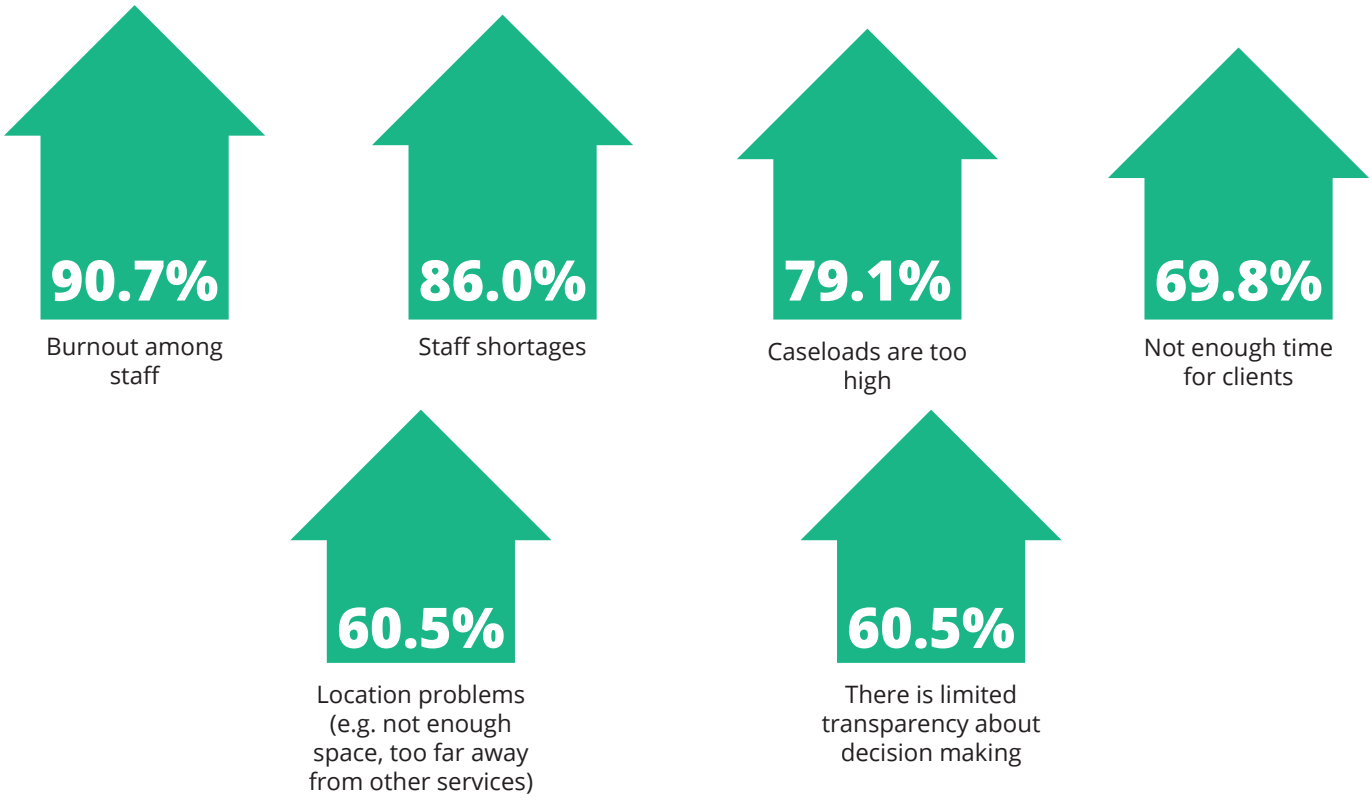
30.2%
Obtain feedback from clients about the program

23.3%
Clients' use of recovery support services

16.3%
Clients' status and progress after leaving the program (systematically)

[178] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The six most frequently staff-reported organizational challenges (n = 43)[179]



Staff members have high job satisfaction (n = 43)

4.0 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

[179] The fifth most frequently reported challenge was reported by 60.5% of providers; the same percent reported the sixth most frequently reported challenge, so six are presented.

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in New Vista: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Pathways, Inc.

Profile of Selected Key Performance Indicators

A brief profile of performance indicators for substance use disorder (SUD) treatment in Pathways, Inc. is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Pathways, Inc. is from a secret shopper study (n = 5).[180] Information about barriers to treatment, services provided, and organizational factors is from a survey with 150 providers who work with clients with SUD at Pathways, Inc.[181] Findings about clients' perceptions of treatment and client-level outcomes is from 774 clients at Pathways, Inc. who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[182]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Pathways, Inc. was 7.7 days (1 - 21 days. Two of the three (66.7%) callers were screened for incarceration and opioid/injection drug use, and none of the three callers were screened for pregnancy. One of the three staff persons who spoke to callers offered information/services (e.g. offer of information or referral) to them while waiting for the appointment. Callers gave an average rating of 7.7 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 150)

67.3%

Concern about separation from children or other people

60.0%

Some clients not taking recovery seriously which makes it difficult for other clients

59.3%

Lack of family or social support for recovery

56.7%

Limits imposed by insurance

54.7%

Time conflicts (e.g. childcare, work schedule)

[180] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Pathways, Inc.: 3 during normal business hours, and 2 after hours calls.

[181] Data from 150 staff members at Pathways, Inc. was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[182] Data was collected from 774 clients who entered SUD treatment in Pathways, Inc. and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 150)

90.7% Peer support specialists

90.0% Cognitive behavioral therapy

86.0% Motivational interviewing

82.0% Relapse prevention services

69.3% Matrix model

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 150)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	98.0%	
Telemedicine/telehealth	98.0%	
Medications to treat addiction	97.3%	
Mental health services	96.7%	
Allow children to stay on site		54.7%
Provide childcare services		14.7%
Resource supports		
Transportation assistance	96.7%	
Case management or linking to resources for basic needs	94.7%	
Help clients access health insurance	90.0%	
Help clients get an ID or birth certificate	88.0%	
Help with criminal legal issues		54.7%
Help with civil legal issues		50.0%
Discharge planning		
Discharge planning	96.7%	
Perform exit assessment for recovery needs	95.3%	
Perform exit assessment with individuals who have dropped out		75.3%

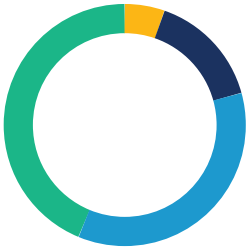
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[183, 184]

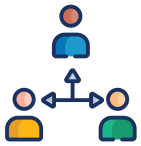
8.2

Average rating of program
[1 = Worst, 10 = Best, n = 769]



5.5%, Not at all
15.5%, Somewhat
33.5%, Pretty well
45.5%, Extremely well

How well treatment worked for client
(among individuals who were asked the question, n = 433)



91.0%

Client would refer a close friend or relative to this provider
[% Yes, n = 433]

8.4

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 403]

8.6

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 404]

7.9

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 402]

8.4

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 400]

8.0

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 403]

[183] Five individuals had missing values for overall rating of the program.

[184] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of Pathways, Inc. clients followed up in KTOS

More than half of the 774 clients were male (55.0%), the vast majority of clients were White (96.4%), and 2.1% were Black/African American. The majority of clients (60.8%) reported living in a non-metropolitan county, 21.8% lived in a metropolitan county, and 17.5% in a very rural county. The average age of clients was 36.1 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 760)[185, 186]

Any illegal drug use***

82.5% Intake | **32.4%** Follow-up

Opioid (including heroin) use***

55.8% Intake | **16.2%** Follow-up

Methamphetamine use*** (n = 755)

34.6% Intake | **6.4%** Follow-up

Problem alcohol use*** (n = 758)

43.8% Intake | **18.2%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 758)

73.9% Intake | **28.9%** Follow-up

***p < .001

[185] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[186] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems (n = 771)[187]

Depression or generalized anxiety***

61.3% Intake | **41.6%** Follow-up

Suicidality*** (n = 769)

24.1% Intake | **8.7%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days***

8.4 Intake | **4.3** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, and criminal justice system involvement[188, 189]

Employed full-time or part-time*** (n = 769)

56.8% Intake | **49.4%** Follow-up

Homelessness*** (n = 733)

21.3% Intake | **5.7%** Follow-up

Difficulty meeting basic needs (n = 770)

42.6% Intake | **38.6%** Follow-up

Arrest or incarcerated*** (n = 769)

52.7% Intake | **26.7%** Follow-up

***p < .001

Significant improvement in recovery support and subjective quality of life[190, 191]

Attended mutual help recovery group meetings*** (n = 770)

21.6% Intake | **44.0%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 657)

6.5 Intake | **7.9** Follow-up

***p < .001

[187] Three individuals did not answer items at follow-up about depression and/or anxiety, five individuals had missing data for suicidality at follow-up, and three individuals had missing data for number of days poor health limited daily activities at follow-up.

[188] Four individuals had missing data for usual employment status at follow-up, one individual had missing data for homelessness at follow-up, and four individuals had missing data for at least one item on the difficulty meeting basic needs scale at follow-up.

[189] Five individuals had missing values for arrest or incarceration at follow-up.

[190] Four individuals had missing values for mutual help recovery meetings at follow-up.

[191] The item about quality of life was added in June 2015

Significant improvement in multidimensional recovery (n = 628)[192]

Had all positive dimensions of recovery***

9.1% Intake | **37.3%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 150):

49.3%
Obtain feedback from clients about the program

48.0%
Number of clients who enter the program

44.0%
Clients' use of recovery support services

40.7%
Percent of clients who attend treatment for 30 days or longer

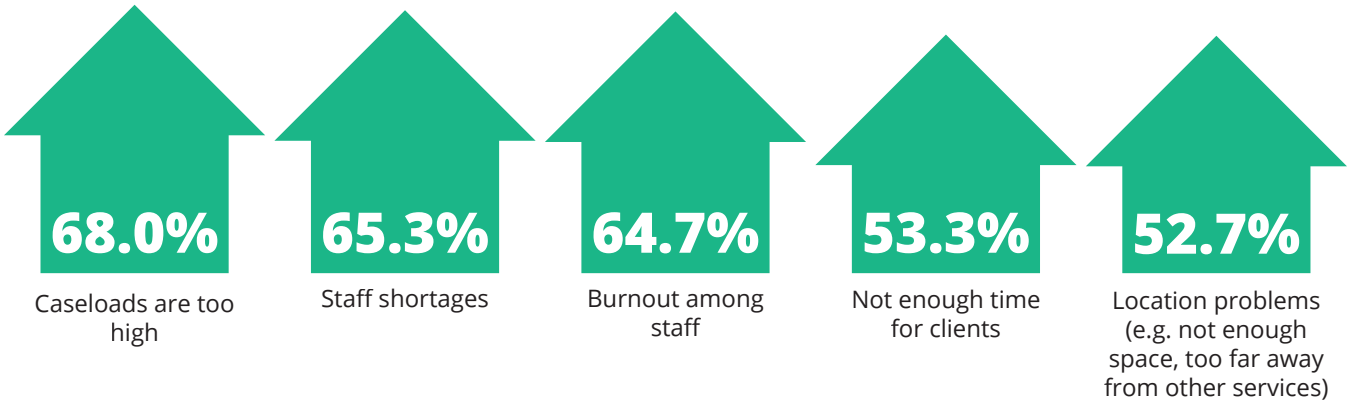
37.3%
Number of clients who drop out

36.0%
Wait time from clients' first contact to assessment

34.0%
Clients' status and progress after leaving the program (systematically)

[192] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 150)



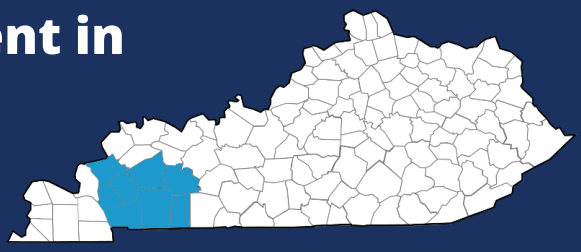
Staff members have high job satisfaction (n = 150)

4.3 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Pathways, Inc.: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Pennyroyal Center

Profile of Selected Key Performance Indicators



A brief profile of performance indicators for substance use disorder (SUD) treatment in Pennyroyal Center is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Pennyroyal Center is from a secret shopper study (n = 5).[193] Information about barriers to treatment, services provided, and organizational factors is from a survey with 24 providers who work with clients with SUD at Pennyroyal Center.[194] Findings about clients' perceptions of treatment and client-level outcomes is from 204 clients at Pennyroyal Center who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[195]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Pennyroyal Center was 10.7 days (2 – 22 days). Two of the four callers who spoke with staff members were screened for pregnancy, incarceration, and opioid /injection drug use. None of the four staff persons who spoke to callers offered information/services to them while waiting for the appointment. Callers gave an average rating of 5.8 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 24)

66.7%

Lack of family or social support for recovery

62.5%

Concern about separation from children or other people

58.3%

Limits imposed by insurance

54.2%

Clients having severe mental health problems

50.0%

Finding transportation to and from the facility

[193] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Pennyroyal Center: 3 during normal business hours, and 2 after hours calls.

[194] Data from 24 staff members at Pennyroyal Center was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[195] Data was collected from 204 clients who entered SUD treatment in Pennyroyal Center and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 24)

91.7% Peer support specialists

91.7% Relapse prevention services

87.5% Cognitive behavioral therapy

83.3% Motivational interviewing

66.7% Seeking Safety

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 24)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	100%	
Mental health services	100%	
Telemedicine/telehealth	100%	
Offer medical detoxification		16.7%
Provide childcare services		8.3%
Resource supports		
Case management or linking to resources for basic needs	100%	
Help clients access health insurance	100%	
Transportation assistance	87.5%	
Housing options as part of the program	83.3%	
Help with criminal legal issues		58.3%
Help with civil legal issues		45.8%
Discharge planning		
Discharge planning	100%	
Perform exit assessment for recovery needs	95.8%	
Perform exit assessment with individuals who have dropped out		70.8%

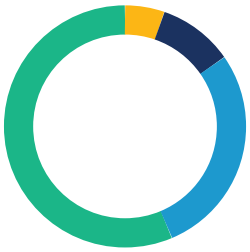
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[196, 197]

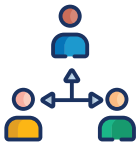
8.6

Average rating of program
[1 = Worst, 10 = Best, n = 202]



4.2%, Not at all
10.2%, Somewhat
28.0%, Pretty well
57.6%, Extremely well

How well treatment worked for client
(among individuals who were asked the question, n = 118)



92.4%

Client would refer a close friend or relative to this provider
[% Yes, n = 119]

9.1

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 110]

9.2

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 110]

8.5

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 110]

9.2

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 109]

8.9

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 109]

[196] Two individuals had missing values for rating of overall treatment.

[197] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of Pennyroyal Center clients followed up in KTOS

More than half of the 204 clients were female (53.4%), most clients were White (90.7%), and 7.4% were Black/African American. Just over half (51.5%) reported living in a non-metropolitan county, 40.4% in a metropolitan county, and 8.1% in a very rural county. The average age of clients was 34.3 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 202)[198, 199]

Any illegal drug use***

93.6% Intake | **35.1%** Follow-up

Opioid (including heroin) use***

70.8% Intake | **14.9%** Follow-up

Methamphetamine use*** (n = 201)

57.2% Intake | **10.9%** Follow-up

Problem alcohol use***

46.5% Intake | **15.3%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 198)

98.0% Intake | **36.4%** Follow-up

***p < .001

[198] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[199] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems (n = 204)[200]

Depression or generalized anxiety***

84.3% Intake | **36.8%** Follow-up

Suicidality***

29.9% Intake | **8.3%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days (n = 203)***

13.5 Intake | **3.8** Follow-up

***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement (n = 204)[201]

Employed full-time or part-time*

62.7% Intake | **52.0%** Follow-up

Homelessness*** (n = 202)

40.6% Intake | **8.4%** Follow-up

Difficulty meeting basic needs***

59.3% Intake | **41.2%** Follow-up

Arrest or incarcerated***

63.2% Intake | **34.3%** Follow-up

*p < .05, ***p < .001

Significant improvement in recovery support and subjective quality of life[202]

Attended mutual help recovery group meetings*** (n = 204)

32.4% Intake | **59.8%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 170)

7.1 Intake | **8.0** Follow-up

***p < .001

[200] One individual had missing data for number of days poor health limited daily activities at follow-up.

[201] Two individuals had missing data for homelessness at follow-up.

[202] The item about quality of life was added in June 2015.

Significant improvement in multidimensional recovery (n = 163)[203]

Had all positive dimensions of recovery***

1.2% Intake | **33.1%** Follow-up

***p < .001

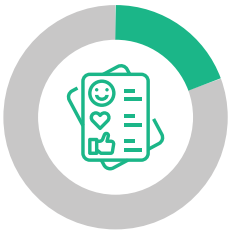
Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 24)

29.2%
Number of clients who enter the program

25.0%
Wait time from clients' first contact to assessment

25.0%
Number of clients who drop out



20.8%
Obtain feedback from clients about the program

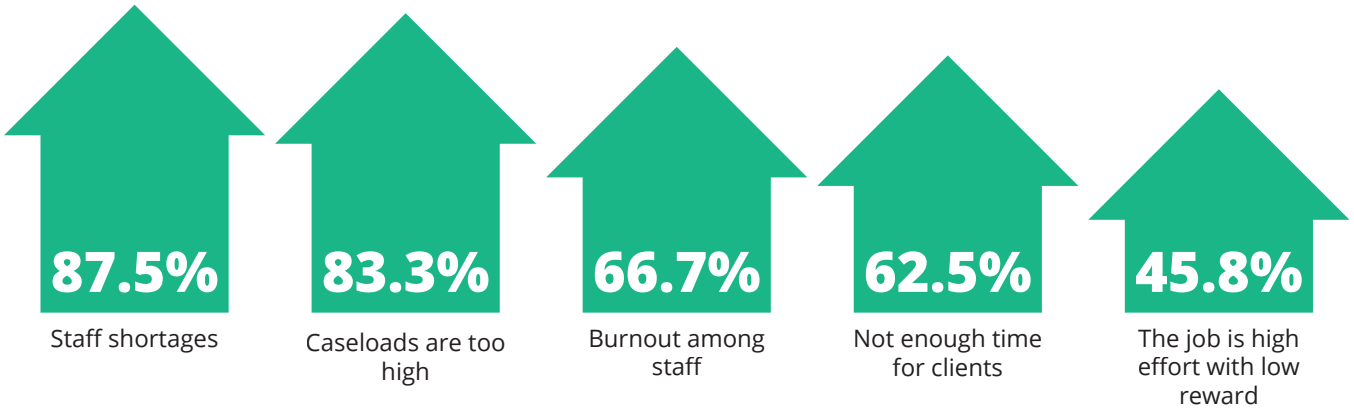
20.8%
Clients' use of recovery support services

20.8%
Percent of clients who attend treatment for 30 days or longer

16.7%
Clients' status and progress after leaving the program (systematically)

[203] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 24)



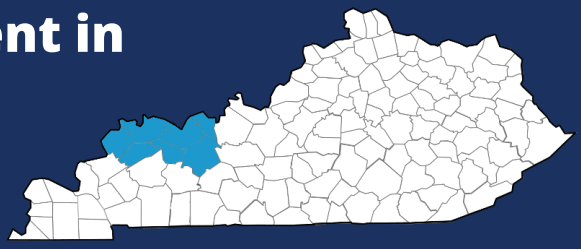
Staff members have high job satisfaction (n = 24)

4.6 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Pennyroyal Center: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in RiverValley Behavioral Health

Profile of Selected Key Performance Indicators



A brief profile of performance indicators for substance use disorder (SUD) treatment in RiverValley Behavioral Health is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at RiverValley Behavioral Health is from a secret shopper study (n = 5).[204] Information about barriers to treatment, services provided, and organizational factors is from a survey with 34 providers who work with clients with SUD at RiverValley Behavioral Health.[205] Findings about clients' perceptions of treatment and client-level outcomes is from 267 clients at RiverValley Behavioral Health who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[206]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at RiverValley Behavioral Health was 53 days (36 – 79 days). None of the staff persons screened callers for pregnancy or incarceration, while one staff person screened a caller for opioid/injection drug use. None of the four staff persons who spoke to callers offered information/services to them while waiting for the appointment. Callers gave an average rating of 6.8 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 34)

76.5%

Concern about separation from children or other people

70.6%

Lack of family or social support for recovery

67.6%

Some clients not taking recovery seriously which makes it difficult for other clients

58.8%

Concern about about separation from or care of pets

50.0%

Clients having severe mental health problems

[204] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to RiverValley Behavioral Health: 3 during normal business hours, and 2 after hours calls.

[205] Data from 34 staff members at RiverValley Behavioral Health was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[206] Data was collected from 267 clients who entered SUD treatment in RiverValley Behavioral Health and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 34)

85.3% Cognitive behavioral therapy

82.4% Relapse prevention services

76.5% Peer support specialists

76.5% Motivational interviewing

76.5% Seeking Safety

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 34)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	100%	
Mental health services	100%	
Telemedicine/telehealth	97.1%	
Provide medications to treat addiction	94.1%	
Offer medical detoxification		41.2%
Provide childcare services		17.6%
Resource supports		
Help clients access health insurance	100%	
Case management or linking to resources for basic needs	97.1%	
Help clients get an ID or birth certificate	88.2%	
Help with criminal legal issues		55.9%
Help with civil legal issues		52.9%
Discharge planning		
Discharge planning	100%	
Perform exit assessment for recovery needs	94.1%	
Perform exit assessment with individuals who have dropped out		76.5%

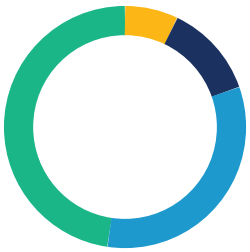
Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program[207, 208]

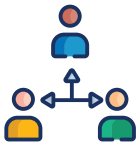
8.5

Average rating of program
[1 = Worst, 10 = Best, n = 266]



6.2%, Not at all
13.1%, Somewhat
32.4%, Pretty well
48.3%, Extremely well

How well treatment worked for client
(among individuals who were asked the question, n = 145)



91.0%

Client would refer a close friend or relative to this provider
[% Yes, n = 145]

8.4

Shared decision-making between client and staff
[Low = 0, 10 = high rating for "worked on things important to the client"and "client had input into goals, plans, and progress", n = 136]

8.8

Respect shown to client
[0 = Low, 10 = high rating for "staff believed in client", n = 136]

8.0

Communication between staff and client
[Low = 0, 10 = high rating for "client felt heard" and "client fully discussed issues with staff", n = 136]

8.6

Therapeutic alliance
[Low = 0, 10 = high rating for "client had a connection with staff" and "believed staff cared about them", n = 134]

8.4

Perceived effectiveness of treatment
[Low = 0, 10 = high rating for "the approach and method were a good fit for client," and "client's expectations for the program were met", n = 136]

[207] One individual had a missing value for overall rating of the program.

[208] Items about perceptions of care were changed several times during this period of data collection; thus, not all respondents were asked these items.

Client-level outcomes

Demographics of RiverValley Behavioral Health clients followed up in KTOS

About half of the 267 clients were male (50.6%), most clients were White (89.1%), and 8.2% were Black/African American. The majority of clients (85.6%) reported living in a metropolitan county, 13.3% in a non-metropolitan county, and 1.1% in a very rural county. The average age was 34.6 years old.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 256)[209, 210]

Any illegal drug use***

87.1% Intake | **30.5%** Follow-up

Opioid (including heroin) use***

36.6% Intake | **10.1%** Follow-up

Methamphetamine use***

64.8% Intake | **11.3%** Follow-up

Problem alcohol use***

36.3% Intake | **12.1%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 262)

85.5% Intake | **27.1%** Follow-up

***p < .001

[209] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[210] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

Significant reductions in past-12-month mental health and physical health problems (n = 267)[211]

Depression or generalized anxiety***

65.2% Intake | **42.3%** Follow-up

Suicidality**

18.7% Intake | **10.5%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days (n = 265)***

7.9 Intake | **3.2** Follow-up

**p < .01, ***p < .001

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness, economic hardship, and criminal justice system involvement[212, 213, 214]

Employed full-time or part-time (n = 265)

57.7% Intake | **61.1%** Follow-up

Homelessness*** (n = 267)

33.3% Intake | **9.0%** Follow-up

Difficulty meeting basic needs*** (n = 265)

58.5% Intake | **35.5%** Follow-up

Arrest or incarcerated*** (n = 266)

82.3% Intake | **38.0%** Follow-up

***p < .001

Significant improvement in recovery support and subjective quality of life[215, 216]

Attended mutual help recovery group meetings*** (n = 266)

38.7% Intake | **59.8%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 230)

6.0 Intake | **7.9** Follow-up

***p < .001

[211] Two individuals had missing values for number of days poor health limited daily activities at follow-up.

[212] Two individuals had missing values for usual employment status at follow-up.

[213] Two individuals had missing values for at least one of the items in the difficulty meeting basic needs scale at follow-up.

[214] One individual had a missing value for arrest or incarceration at follow-up.

[215] One individual had a missing value for mutual help recovery meetings at follow-up.

[216] The item about quality of life was added in June 2015.

Significant improvement in multidimensional recovery (n = 222)[217]

Had all positive dimensions of recovery***

0.9% Intake | **39.6%** Follow-up

***p < .001

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 34)

35.3%
Number of clients who enter the program

29.4%
Percent of clients who attend treatment for 30 days or longer

26.5%
Obtain feedback from clients about the program

23.5%
Clients' use of recovery support services

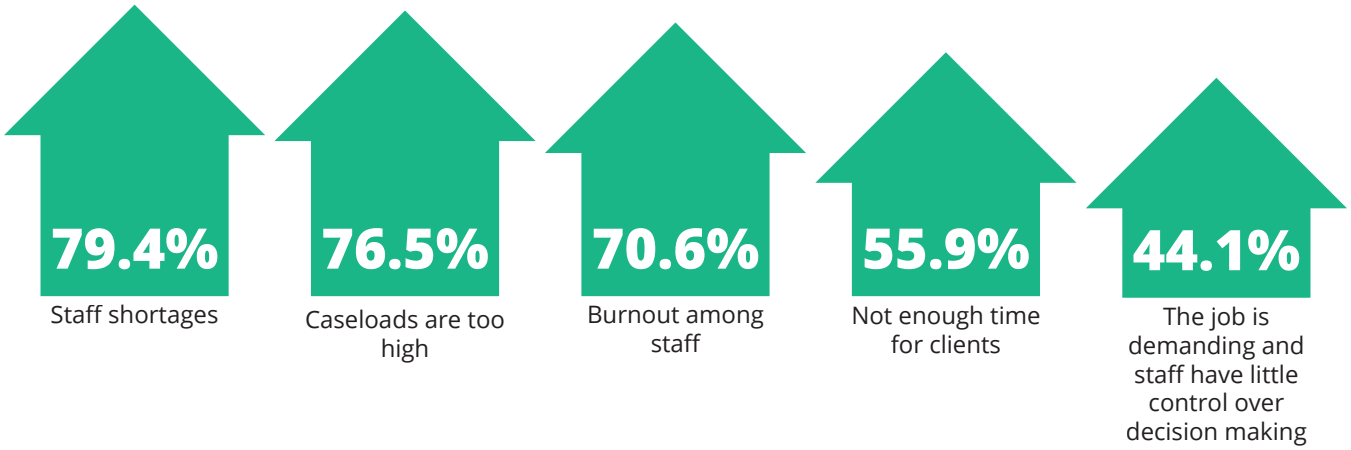
23.5%
Wait time from clients' first contact to assessment

20.6%
Number of clients who drop out

20.6%
Clients' status and progress after leaving the program (systematically)

[217] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

The five most frequently staff-reported organizational challenges (n = 34)



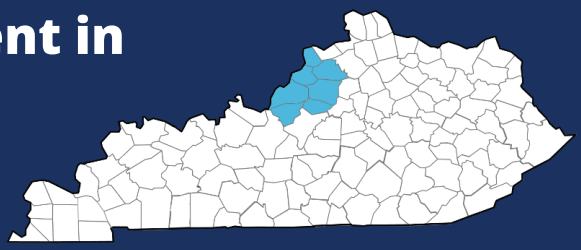
Staff members have high job satisfaction (n = 34)

4.0 Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in RiverValley Behavioral Health: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Substance Use Disorder Treatment in Seven Counties Services

Profile of Selected Key Performance Indicators



A brief profile of performance indicators for substance use disorder (SUD) treatment in Seven Counties Services is presented in six main categories: (1) making a first appointment, (2) barriers to treatment engagement, (3) services provided, (4) clients' perceptions of treatment, (5) client-level outcomes, and (6) organizational factors. Information about making a first appointment for treatment at Seven Counties Services is from a secret shopper study (n = 5).[218] Information about barriers to treatment, services provided, and organizational factors is from a survey with 45 providers who work with clients with SUD at Seven Counties Services.[219] Findings about clients' perceptions of treatment and client-level outcomes is from 108 clients at Seven Counties Services who completed an intake and follow-up survey in a multi-year outcome evaluation, Kentucky Treatment Outcome Study (KTOS).[220]

Making a First Appointment

In a secret shopper study, the average wait time to the first appointment at Seven Counties Services was 7.0 days (4 – 13 days). Four of five callers who spoke to staff were screened for opioid/injection drug use (80.0%), three callers were screened for pregnancy (60.0%), and one caller was screened for incarceration (20.0%). None of the staff persons offered information/services to callers while they were waiting for the appointment. Callers gave an average rating of 7.8 (1 = worst and 10 = best) for the professionalism, friendliness, and caring of staff.

Barriers to Treatment Engagement

The five most commonly staff-reported structural or organizational barriers to clients staying in SUD program (n = 45)

71.1%

Lack of family or social support for recovery

68.9%

Some clients not taking recovery seriously which makes it difficult for other clients

68.9%

Clients having severe mental health problems

66.7%

Concern about separation from children or other people

53.3%

Limits imposed by insurance

[218] A secret shopper study was conducted February 17, 2023- April 27, 2023. Five calls were made to Seven Counties Services: 3 during normal business hours, and 2 after hours calls.

[219] Data from 45 staff members at Seven Counties Services was collected in a larger study of providers in all CMHCs in Kentucky. Surveys were conducted between February 20, 2023 to April 11, 2023. The survey was completed online, with verification of eligibility, and took an average of 45 minutes.

[220] Data was collected from 108 clients who entered SUD treatment in Seven Counties Services and completed an intake survey in Kentucky Treatment Outcome Study (KTOS) in FY 2015-2021 and then completed a follow-up survey with the research team about 12 months later. Details about KTOS are available at https://cdar.uky.edu/KTOS/

Services Provided

The five most commonly staff-reported evidence-based practices the program uses (n = 45)

80.0% Peer support specialists

77.8% Relapse prevention services

75.6% Motivational interviewing

68.9% Seeking Safety

66.7% Cognitive behavioral therapy

Most commonly and least commonly staff-reported services provided to some or all clients in SUD treatment (n = 45)

	Most commonly reported	Least commonly reported
Services		
Individual counseling	97.8%	
Provide medications for addiction	93.3%	
Telemedicine/telehealth	91.1%	
Offer family counseling		68.9%
Provide childcare services		31.1%
Resource supports		
Help clients access health insurance	100%	
Case management or linking to resources for basic needs	97.8%	
Transportation assistance	95.6%	
Having housing options as part of the program	95.6%	
Help with civil legal issues		42.2%
Help with criminal legal issues		42.2%
Discharge planning		
Discharge planning	95.6%	
Perform exit assessment for recovery needs	95.6%	
Perform exit assessment with individuals who have dropped out		66.7%

Clients' Perceptions of Treatment

Clients' ratings of treatment at follow-up

Clients had largely favorable perceptions of the treatment program (n = 108)[221]

8.9

Average rating of program
[1 = Worst, 10 = Best]

Client-level outcomes

Demographics of Seven Counties Services clients followed up in KTOS

The majority of clients were female (89.8%), most clients were White (88.0%), and 6.5% were Black/African American. The vast majority (97.1%) reported living in a metropolitan county, 2.0% lived in a very rural county, and 1.0% lived in a non-metropolitan county. The average age of clients was 32.5 years old.

[221] The perception of care items were changed several times during the period. Only seven individuals completed the most up-to-date version of the perception of care questions. Thus, only the overall rating of treatment is presented for the sample of followed-up clients because this item was included on all versions.

Change in behavioral health from intake to follow-up

Significant reductions in past-12-month substance use (n = 104)[222, 223]

Any illegal drug use***

93.3% Intake | **43.3%** Follow-up

Opioid (including heroin) use***

74.0% Intake | **25.0%** Follow-up

Methamphetamine use***

34.6% Intake | **4.8%** Follow-up

Problem alcohol use***

52.9% Intake | **20.2%** Follow-up

Mild, moderate or severe SUD (per DSM-5 criteria)*** (n = 105)

85.7% Intake | **38.1%** Follow-up

***p < .001

Significant reductions in past-12-month mental health and physical health problems (n = 108)[224]

Depression or generalized anxiety***

81.5% Intake | **42.6%** Follow-up

Suicidality***

36.1% Intake | **6.5%** Follow-up

Average number of days poor physical or mental health limited daily activities in the past 30 days (n = 107)***

13.2 Intake | **3.2** Follow-up

***p < .001

[222] Individuals who were incarcerated all 365 days before intake or follow-up were excluded from this analysis because being incarcerated inhibits opportunities for using substances.

[223] Questions about SUD criteria were asked of all clients, regardless of incarceration status; however, a small number of individuals did not answer all the items at intake and/or follow-up.

[224] One individual had missing data for number of days poor health limited daily activities.

Change in other targeted factors from intake to follow-up

Significant improvements in homelessness and economic hardship[225, 226, 227]

Employed full-time or part-time (n = 106)

63.2% Intake | **55.7%** Follow-up

Homelessness*** (n = 107)

46.7% Intake | **11.2%** Follow-up

Difficulty meeting basic needs** (n = 108)

63.9% Intake | **43.5%** Follow-up

Arrest or incarcerated (n = 105)

38.1% Intake | **27.6%** Follow-up

**p < .01, ***p < .001

Significant improvement in recovery support and subjective quality of life[228, 229]

Attended mutual help recovery group meetings*** (n = 107)

40.2% Intake | **71.0%** Follow-up

Subjective quality of life rating [1 = worst possible, 10 = best possible]*** (n = 91)

6.0 Intake | **7.7** Follow-up

***p < .001

[225] Two individuals had missing data for usual employment status at follow-up and one individual had missing data for homelessness at follow-up.

[226] One individual had a missing value for homelessness at follow-up.

[227] Three individuals had missing values for arrest or incarceration at follow-up.

[228] One individual had a missing value for mutual help recovery meetings at follow-up.

[229] The item about quality of life was added in June 2015.

Improvement in multidimensional recovery (n = 85)[230, 231]

Had all positive dimensions of recovery[a]

0.0% Intake | **24.7%** Follow-up

a--No test of statistical association could be computed for multidimensiioional recovery in the 12 months before entering treatment because one of the cell values was 0.

Organizational factors

Percent of staff reporting their organization tracks and widely shares information on (n = 45)

35.6%
Number of clients who enter the program

31.1%
Clients' use of recovery support services

28.9%
Wait time from clients' first contact to assessment

26.7%
Percent of clients who attend treatment for 30 days or longer

26.7%
Number of clients who drop out

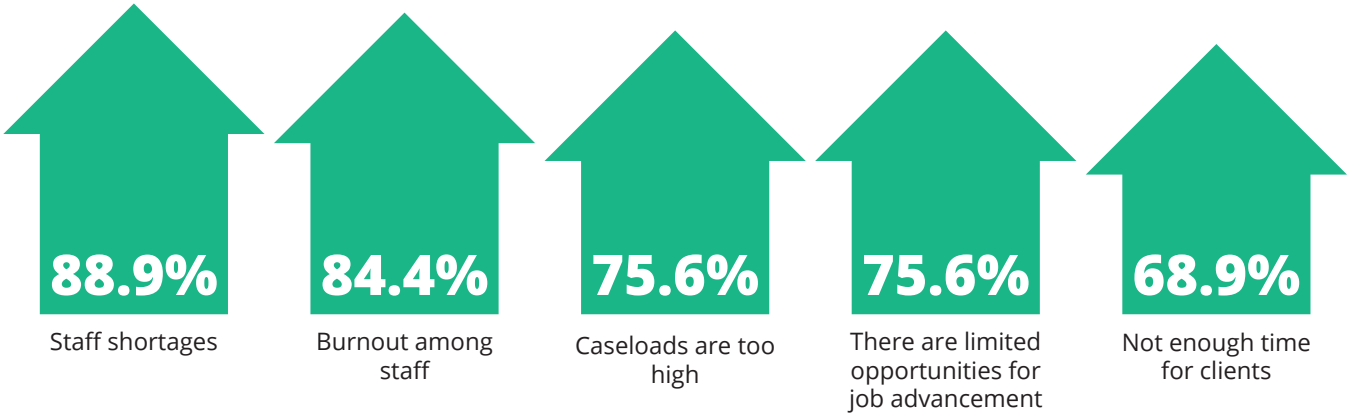
26.7%
Obtain feedback from clients about the program

24.4%
Clients' status and progress after leaving the program (systematically)

[230] Multidimensional recovery is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicidality, fair to excellent health, had at least one person supportive of recovery, and mid-to high-level quality of life. Some of the items used to compute the multidimensional recovery index were added in 2015 and 2016.

[231] Statistical test of association (McNemar's test) could not be computed because one of the cells in the crosstabulation had a value of 0.

The five most frequently staff-reported organizational challenges (n = 45)



Staff members have high job satisfaction (n = 45)

4.0

Average job satisfaction of staff members
[1 = lowest, 5 = highest]

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2023). *Substance use disorder treatment in Seven Counties Services: Profile of selected key performance indicators.* Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.