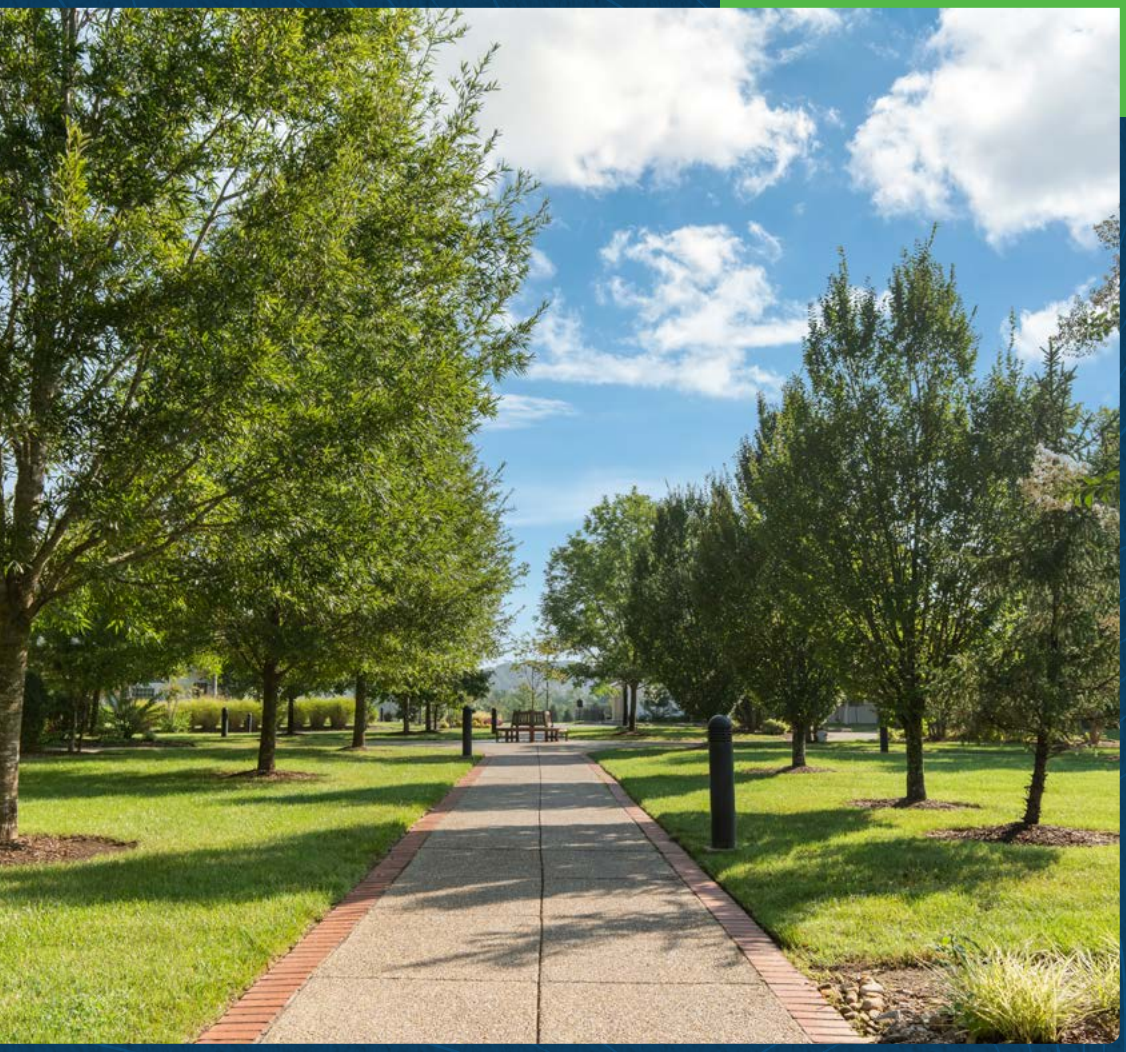
cumberland heights

2023 ANNUAL OUTCOMES REPORT



ADOLESCENT RECOVERY of cumberland heights

STILL WATERS of cumberland heights

RESEARCH INSTITUTE of cumberland heights

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SUMMARY

The Research Institute at Cumberland Heights Foundation is proud to present our 6th Annual Outcomes Report. The following report represents both our commitment to monitor treatment effectiveness and responsibility to disseminating those observations directly to the public. Our primary goal in distributing these data lies centrally in our belief that those searching for treatment should have access to clear and transparent information that accurately highlights treatment outcomes. We believe that the findings in this report reflect that commitment and highlight the positive average change our programs can have on individuals' lives.

This year, we are especially proud of the broad collaboration shown by many teams throughout our organization. Each of them have contributed to the impact these practices have had on our programs. The following milestones were all reached in 2023.

✔ Maintained our Measurement Based Care and Post Discharge data collection systems, surpassing (n = 800,000) unique waves of patient data.

✔ Expanded the SUD Outcomes Network membership and surpassed (n = 15,000) unique episodes of care into that system.

✔ Supported our formal partnership with the National Association of Addiction Treatment Provider's (NAATP) Addiction Treatment Outcomes Program (i.e., analytics partner).

The growth of our data programs reflects our commitment to monitor and examine how patients respond to treatment and to ensure (as best we can) that patients continue to progress as expected. To date, we have discovered the following:

Longitudinal Symptom Reduction

On average, patient reported symptoms maintained significant reductions throughout treatment and up to one-year post discharge treatment services.

Decreased Readmission

Patients who engage for longer periods of time in treatment were observed to have better overall post-discharge outcomes (e.g., higher recovery participation, lower readmission rates).

Increased Abstinence

Patients who successfully completed our programs were observed to have a higher likelihood to report abstinence at one-year post treatment services.

Over the last 6 years, Cumberland Heights Foundation has invested significantly in our ability to measure and monitor patient change. In 2018, we launched a simple and valid measurement program aimed at collecting data on patient symptoms as they moved through treatment (i.e., Measurement Based Care (MBC)). In 2019, we expanded our Measurement-Based Care program to include more indices of measurement and leveraged these data internally to assist clinical programs with dynamic monitoring of patient symptomatology. In 2020, we launched a multi-organization collaborative, aimed at collecting and analyzing patient data across unique programs to better understand our outcomes. To date, eight organizations have contributed data to that repository. In 2021, we assisted NAATP with the development of the Foundation for Recovery Science and Education's (FoRSE) Addiction Treatment Outcomes Program. Recently, in 2023, we enhanced our measurement-based care program by launching tailormade versions in support of our Still Waters and ARCH Academy programs.

The motivation of our work remains centered on helping those who suffer from Substance Use Disorder (SUD). We believe that our research practices help to improve our treatments, better inform our patients, and contribute to the greater collective of the addiction treatment field. We could not be more excited to share some of our organizational progress along with preliminary data directly with our patients, staff, and community stakeholders.

Respectfully

Nick Hayes

Nick Hayes, PhD, Chief Science Officer

Antoinette Giedzinska

Antoinette Giedzinska, PhD, Director of the Research Institute

ABOUT US

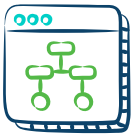
The Research Institute at Cumberland Heights Foundation was founded in 2018 with the expressed mission of supporting patient change through research. The impact our research practices have had on our organization has been immeasurable. The mixture of technology, data science, and research has transformed Cumberland Heights into a learning healthcare network. In other words, we have developed the organizational skills that enable our teams, patients, and community partners to all have rapid access to the data that can assist in effective treatment intervention.

Research Agenda

Our current focus remains centered on the three core research domains below. Altogether, we remain committed to examining our own effectiveness and communicating those observations directly to the public.

Investigating the novel application of Measurement Based Care in SUD treatment contexts.

Examining the long-term efficacy of Medication Assisted Treatments (e.g., buprenorphine and naltrexone).



Exploring the association between Treatment Dosage and Post-Discharge Outcomes.

JOIN US AND HELP CREATE CHANGE

There are many ways to get involved! Partner with our research staff, apply for an internship, or become a donor. There is more than enough room for everyone to get involved.
Contact our team anytime at: **research@cumberlandheights.org**

WHY DO WE MEASURE CHANGE?

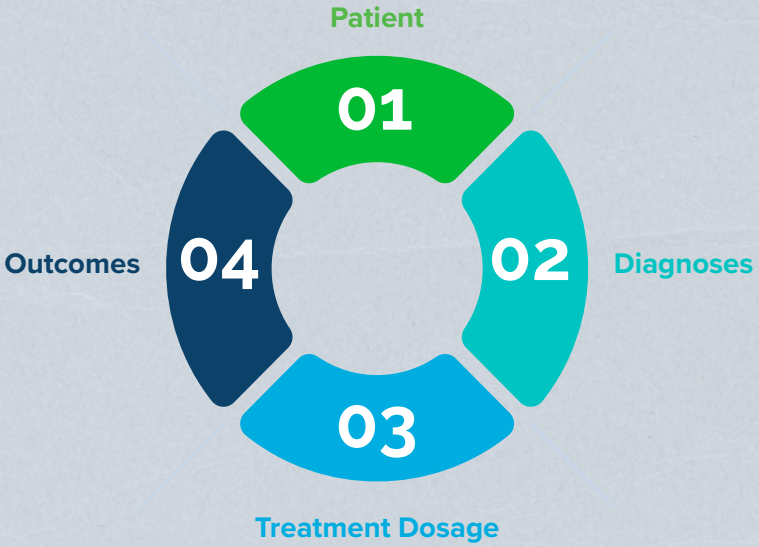
The application of measurement processes within treatment science remains fundamentally critical. Measurement provides the bedrock for any practice to determine treatment effectiveness. For without measurement, how can we ensure our treatments are effective? The practice of measurement increases our ability to monitor treatment progress, assists in identification of treatment goals, reduces symptom deterioration, and improves overall patient outcomes.[1]

To this end, our healthcare system has adopted the use of Measurement Based Care (MBC). Defined as the practice of leveraging patient data throughout treatment in support of clinical processes[2]. Analogous to measuring 'blood pressure', we believe these practices to be a part of the evidence-based future of SUD treatment.

What do we measure?

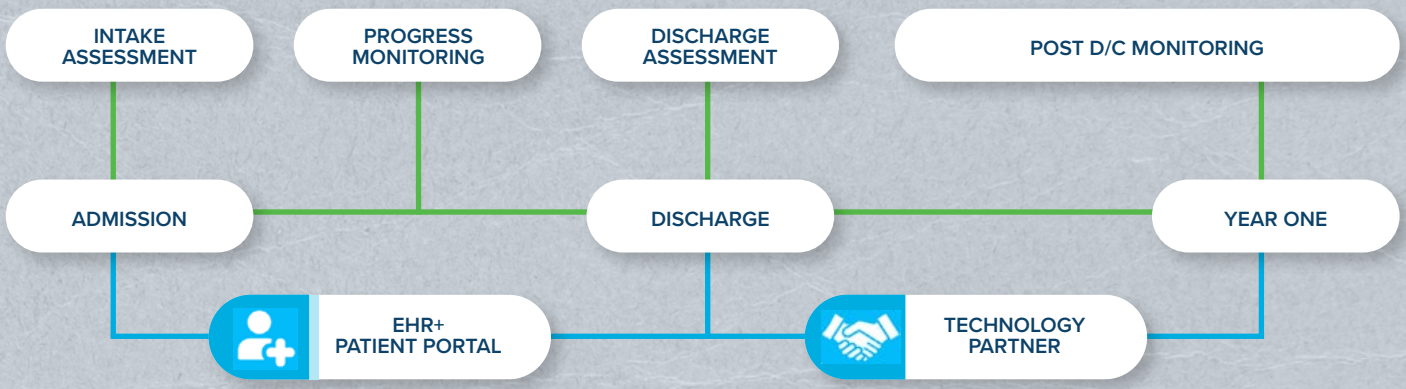
The goals of our MBC system are grounded in both clinical and research utility. By leveraging psychometrically valid tools throughout treatment course and post-discharge acute treatment intervention, our teams are better equipped to maintain appropriate treatment dosage (as evidenced by observed change in patient symptomatology).

Our Measurement Based Care system
is organized by the following four domains of data

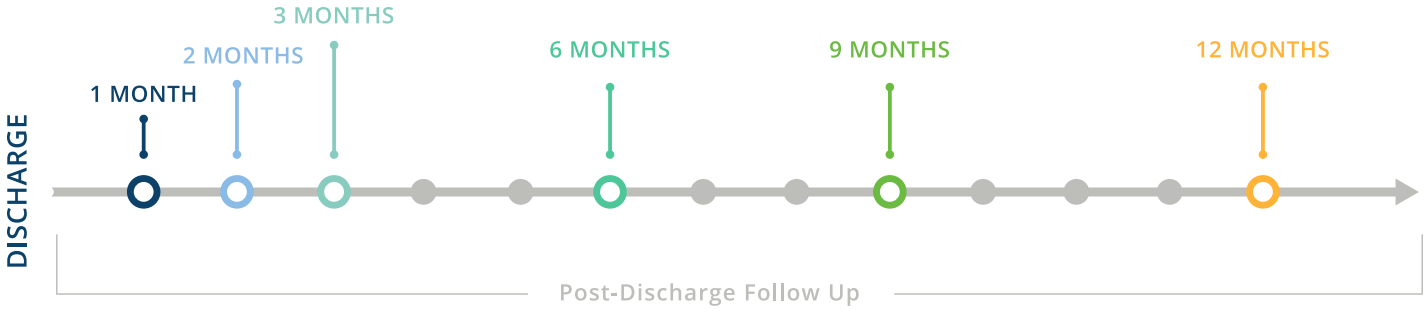


HOW DO WE COLLECT DATA?

First, Patient (i.e., demographics, medical/treatment history, etc.), Diagnoses (i.e., SUD, Medical, and Behavioral), and Treatment Dosage (i.e., number of days in each level of care) are all collected through our Electronic Health Record (EHR) and Patient Portal systems. Lastly, Outcome Monitoring data are obtained within treatment by our Patient Portal system and post-discharge by our technology partner via SMS (i.e., standardized assessment).



WHEN DO WE COLLECT DATA?



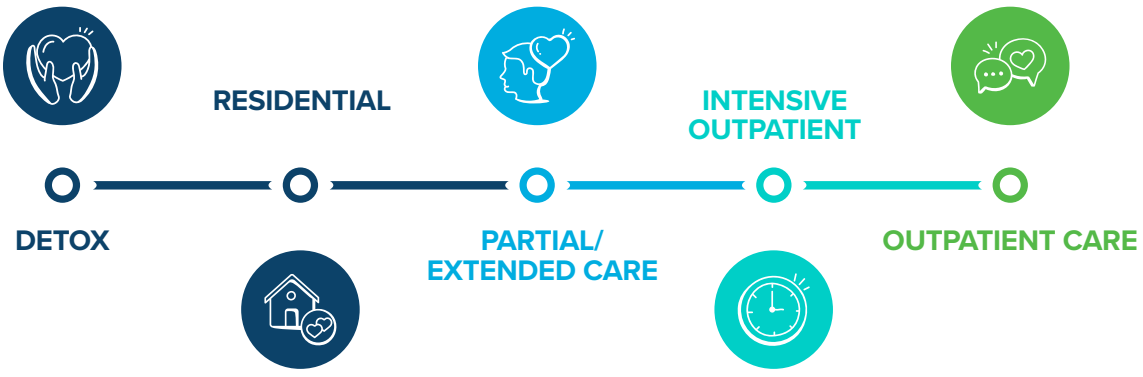
OUR TREATMENTS

At Cumberland Heights Foundation, our teams strive to provide the best treatments to our patients and their families. We accomplish that goal through the application of Evidence Based Practices (EBPs). Our multidisciplinary treatment teams work synergistically to effectively assess each patient, create robust treatment plans of intervention, and help to support the development of the skills needed to effectively engage in recovery.

EBPs we use - What are Evidence Based Practices (EBPs)?

- Motivational Interviewing (MI)
- 12 Step Facilitation (TSF)
- Cognitive Behavioral Therapy (CBT)
- Emotionally Focused Therapy (EFT)
- Solution Focused Brief Therapy (SFBT)
- Dialectical Behavior Therapy (DBT)
- Medication-Assisted Treatment (MAT)

Levels of Patient Care



OUR PATIENTS

Female Demographic Information
Sample (n = 568)
Average Length of Stay: 35.5 Days

Average Age 42 Years
Age Range 18-79

Female Marital Status

- Married: 43%
- Single: 35%
- Divorced: 15%
- Separated: 3%
- Widowed: 3%
- Cohabitating: 1%
- Other: <1%

Female Primary SUD Diagnosis

- Alcohol: 70%
- Opioid: 19%
- Stimulant: 7%
- Cannabis: 2%
- Sedative-Hypnotic Anxiolytic: 1%
- Inhalant: <1%
- Other: <1%

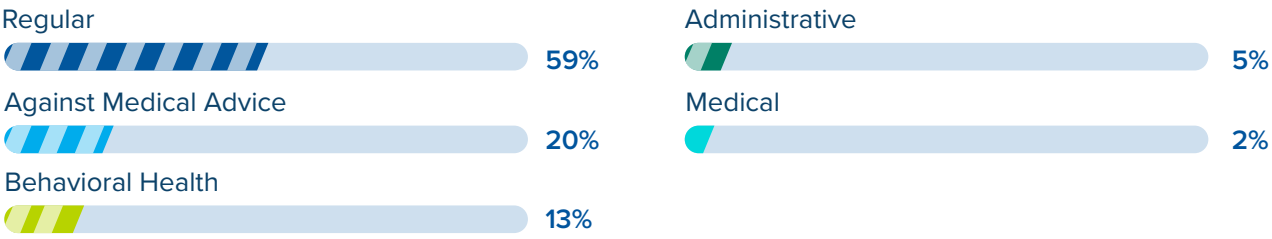
*Female Co-Occurring Diagnoses (Top 3)

Depressive Disorder | Anxiety Disorder | Trauma Disorder

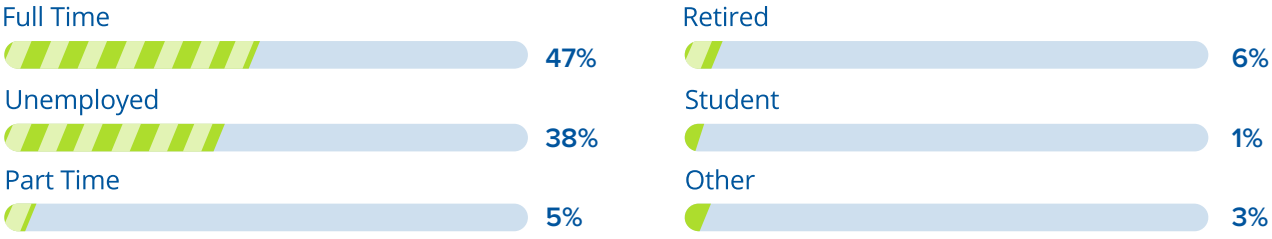
Female Treatment Journey

Residential | IOP | Residential + IOP

Female Discharge Type



Female Employment Status



*Note: Approximately, 50% received a psychiatric comorbid diagnosis.

OUR PATIENTS

Male Demographic Information
Sample (n = 1580)
Average Length of Stay: 36.51 Days

Average Age **38 Years**
Age Range **14-79**

Male Marital Status

- Single: 54%
- Married: 33%
- Divorced: 8%
- Separated: 2%
- Cohabitating: 2%
- Widowed: >1%
- Other: <1%

Male Primary SUD Diagnosis

- Alcohol: 64%
- Opioid: 15%
- Stimulant: 10%
- Cannabis: 8%
- Sedative-Hypnotic-Anxiolytic: 2%
- Inhalant: <1%
- Other: <1%

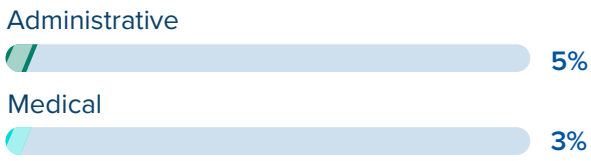
*Male Co-Occurring Diagnosis (Top 3)

Depressive Disorder | Anxiety Disorder | Trauma Disorder

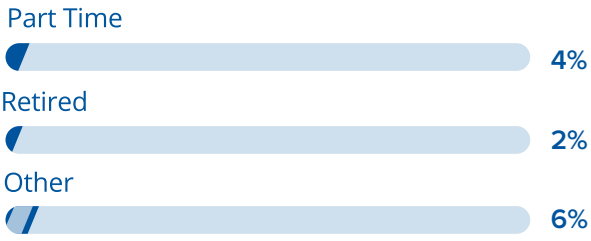
Male Treatment Journey

Residential | IOP | Residential + IOP

Male Discharge Type



Employment Status



*Note: Approximately, 40% received a psychiatric comorbid diagnosis.

PROGRESS MONITORING (SUMMARY)

In 2023, (n = 2,142) patients were surveyed at regular intervals throughout treatment and for one-year post discharge. Known as Measurement Based Care, our system supports patient progress by measuring reported change states and delivering these results back to clinicians and patients.[2] Across all of our MBC programs, we utilize approximately 25 standardized assessments. For this report, we will focus on four of them. For example, the Patient Health Questionnaire (PHQ-9) measuring depression severity; the Generalized Anxiety Disorder Scale (GAD-7) measuring symptoms of anxiety, the Brief Assessment for Recovery Capital (BARC-10) measuring positive supports associated with recovery, and the Craving Scale measuring craving associated with Substance Use Disorder.

On average, patients spent 36.24 days in our health system (e.g., Detox, Residential, Extended Care, and Intensive Outpatient).

On average, patients reported a 69% decrease in depression symptoms.

On average, patients reported a 67% decrease in anxiety symptoms.

On average, patients reported a 64% decrease in craving symptoms.

On average, patients reported a 14% increase in recovery capital resources.

These findings demostrate how treatment at Cumberland Heights Foundation positively impacts patient well-being and reported symptomatology.

PROGRESS MONITORING

Decreased Depression Severity

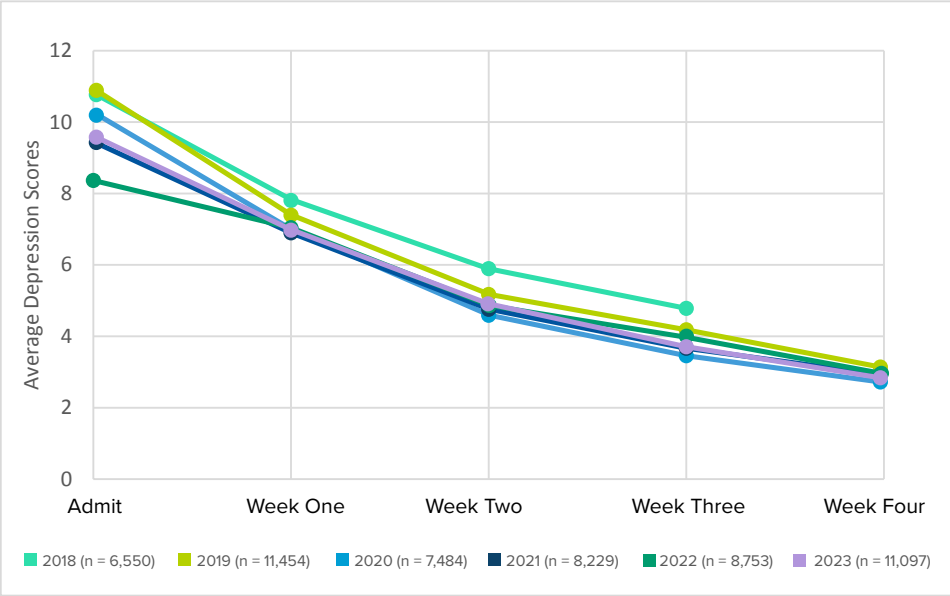
Instrument Description

The Patient Health Questionnaire (PHQ-9) is a standardized assessment used to measure patient levels of depression.[4] The following represents an example of an indicator taken from the PHQ-9: "Little interest or pleasure in doing things".[5] The PHQ-9 is a continuous variable, with scores ranging from (0 – 27), where higher scores indicate elevated levels of depressive symptoms.

Reduction in Depression Symptoms in Patients (six-year comparison)

The highlighted visualization uses exploratory data analysis techniques to demonstrate observed variance in average patient symptoms, as measured by the PHQ-9. These data highlight the significant positive effect that our treatments have had on patient outcomes throughout engagement in our clinical programs.

OBSERVED REDUCTION IN DEPRESSION SYMPTOMS



67%

Decrease in Depression Symptoms across 2018-2023

PROGRESS MONITORING

Decreased Anxiety Severity

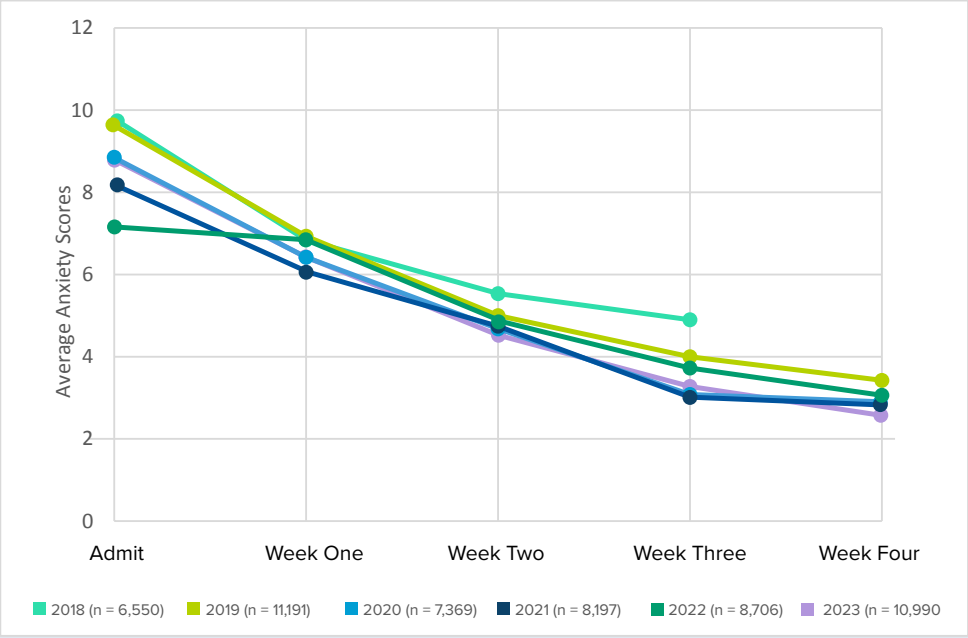
Instrument Description

The Generalized Anxiety Disorder Scale (GAD-7) is a standardized assessment used to measure patient levels of anxiety.[6] The following represents an example of an indicator taken from the GAD-7: "Feeling nervous, anxious, or on edge".[7] The GAD-7 is a continuous variable, with scores ranging from (0 – 21), where higher scores indicate elevated levels of anxiety symptoms.

Reduction in Anxiety Symptoms in Patients (six-year comparison)

The highlighted visualization uses exploratory data analysis techniques to demonstrate observed variance in average patient symptoms, as measured by the GAD-7. These data highlight the significant positive effect that our treatments have had on patient outcomes throughout engagement in our clinical programs.

OBSERVED REDUCTION IN ANXIETY SYMPTOMS



63%

Decrease in Anxiety Symptoms across 2018-2023

PROGRESS MONITORING

Decreased Craving Severity

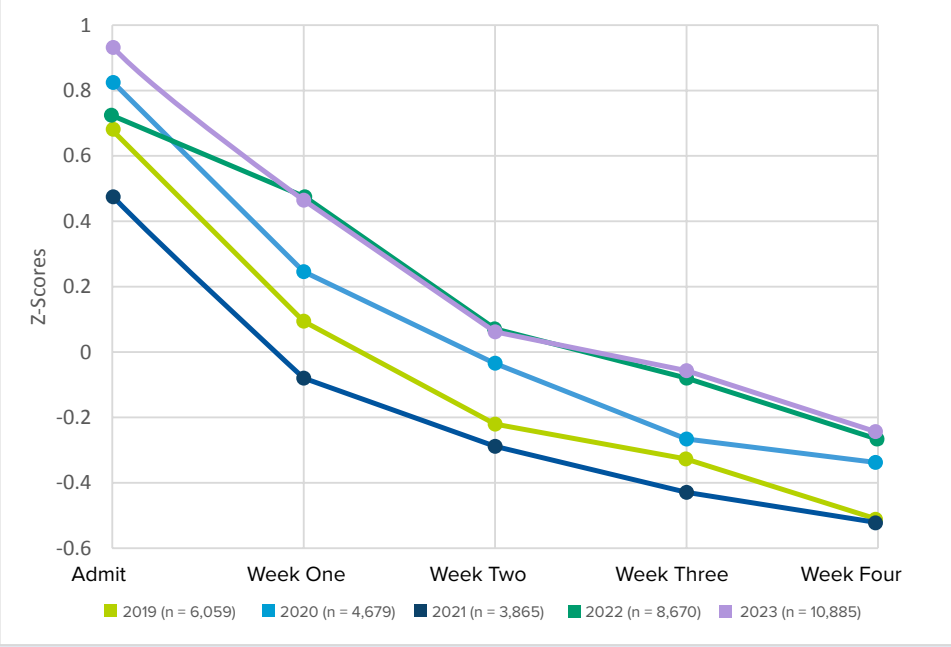
Instrument Description

The Craving Scale is a standardized assessment used to measure craving associated with Substance Use Disorders[8]. The following represents an example of an indicator taken from the Craving Scale: "Please rate how strong your desire was to use in the past 24 hours.". Each item on the Craving Scale is rated on a scale from (0-9), and the total score is calculated as the average of the three items. Higher scores indicate elevated levels of craving symptoms.

Reduction in Craving Symptoms in Patients (five-year comparison)

The highlighted visualization uses exploratory data analysis techniques to demonstrate observed variance in z-scores representing changes in patient symptoms, as measured by the Craving Scale in (2021-2022[18] and the Heroin Craving Questionnaire-Short Form (HCQ-SF-14) between (2019-2020).[9] These data highlight the significant positive effect that our treatments have had on patient outcomes throughout engagement in our clinical programs.

OBSERVED REDUCTION IN CRAVING SYMPTOMS



66%

Decrease in Craving Symptoms across 2021-2023

PROGRESS MONITORING

Increased Recovery Capital Resources

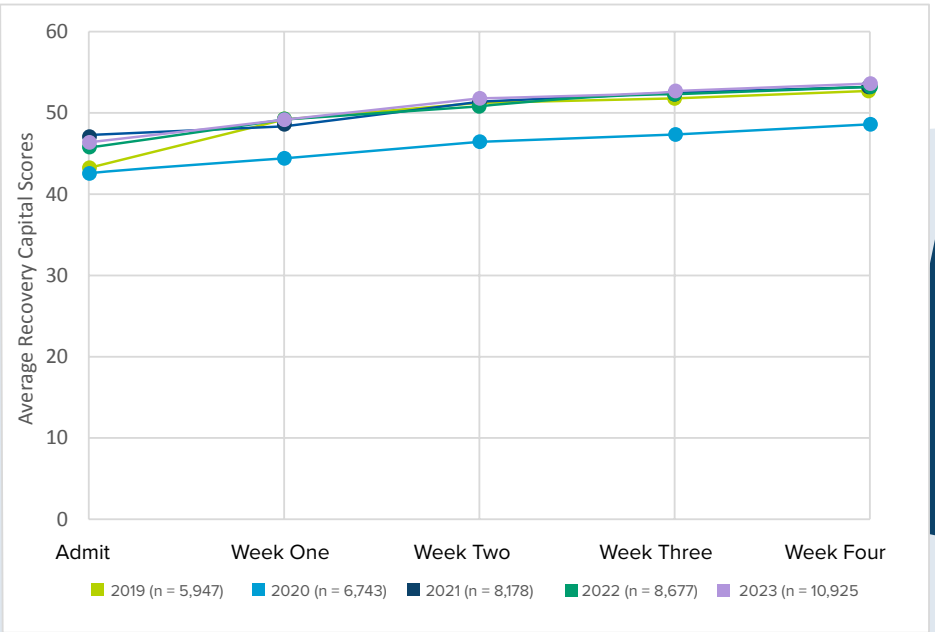
Instrument Description

The Brief Assessment of Recovery Capital (BARC-10) is a standardized assessment used to measure patient levels of recovery capital.[10] The concept of Recovery Capital is defined as "...the quantity and quality of internal and external resources that can be brought to bear to initiate and sustain recovery from SUD". The BARC-10 increases our ability to measure patient success as the measure is associated with "recovery progress that extends beyond mere abstinence". The BARC-10 is a continuous variable, with scores ranging from (10 – 60), where higher scores indicate higher levels of Recovery Capital resources.

Increase in Recovery Capital Resources observed in Patients (five-year comparison)

The highlighted visualization uses exploratory data analysis techniques to demonstrate the observed changes in average patient change, as measured by the BARC-10. These data highlight the significant positive effect that our treatments have had on patient outcomes throughout engagement in our clinical programs.

OBSERVED INCREASE IN RECOVERY CAPITAL RESOURCES



15%

Increase in Recovery Capital across 2019-2023

POST-DISCHARGE OUTCOMES

Cumberland Heights Foundation has been collecting post-discharge outcomes from patients for over five years. Today, our post-discharge measurement program is supported through our Recovery Care Advocates (RCA) program and our Outcomes Program. Founded in 2017, the RCA program consists of Peer Recovery Support Specialists (PRSSs) who are trained to provide support for individuals who are early in recovery from Substance Use Disorder. Our RCAs assist our patients with peer support, identification of positive recovery resources, and accountability away from maladaptive behaviors associated with addiction.

The below visualization represents how our RCA and Outcomes Program synergistically support the collection of post-discharge outcomes.

Heart=Outcomes Program collection
Phone=RCA Contact Point

Measures Collected Post Discharge

Standardized Assessments:

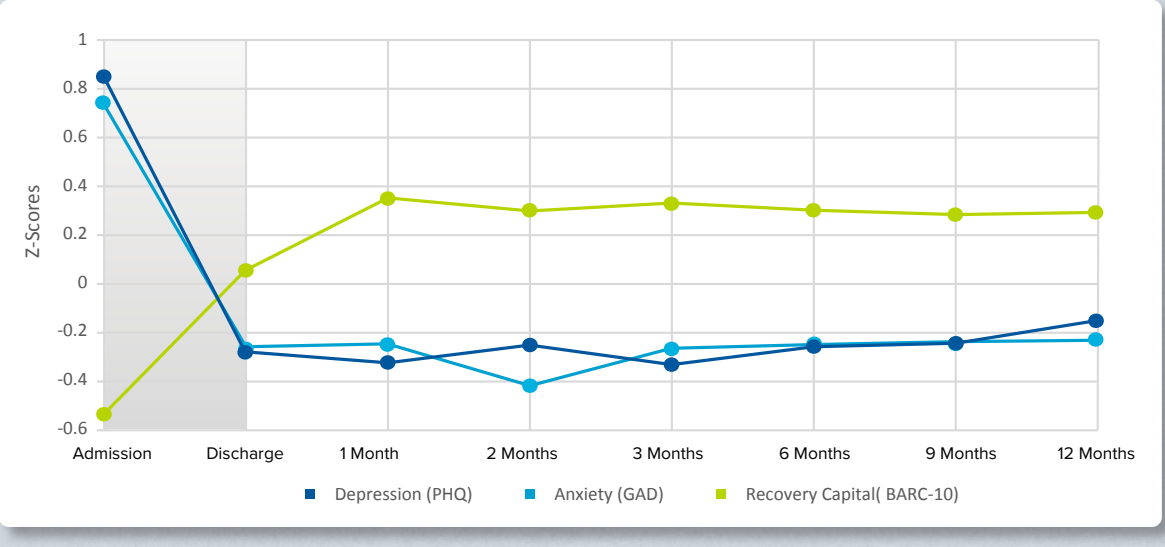
- Depression (The Patient Health Questionnaire (PHQ-9))[4]
- Anxiety (Generalized Anxiety Disorder Scale (GAD-7))[6]
- Craving (The Craving Scale)[10]
- Recovery Capital (The Brief Assessment of Recovery Capital (BARC-10))[10]

Additional Measures: Meeting Attendance, Use Days, Emergency Room Visits, Interactions with Law Enforcement, and Employment Status.

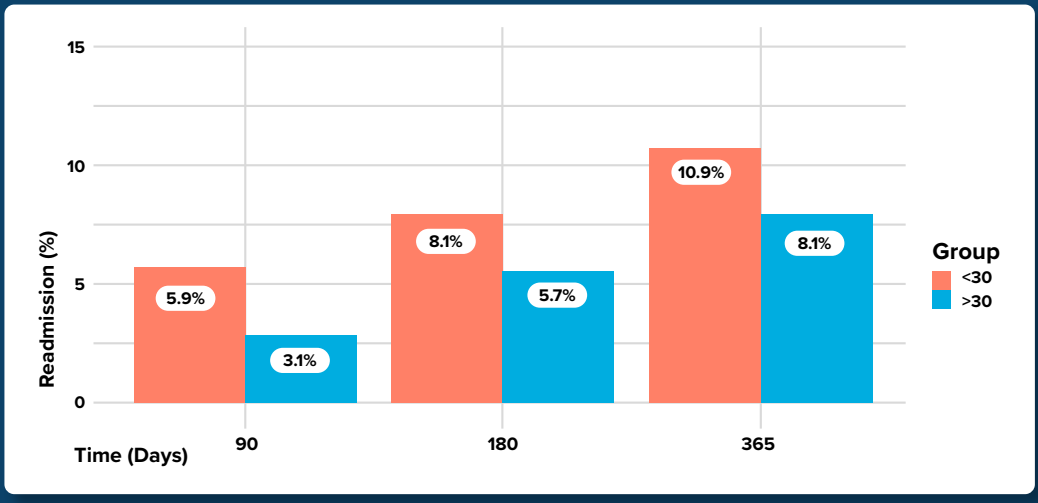
POST-DISCHARGE RESULTS (FOUR-YEAR REVIEW)

The following data (n = 6,314) were collected from (01/01/2020-12/31/2023). The sample remains homogeneous (72% Male, 89% Caucasian, 65% Alcohol Use Disorder, 69% Completed Treatment, with an Average Age of 39 years, and an Average Length of Stay of 36 days). These data demonstrate treatment efficacy observed through data collected over the last three years.

(Longitudinal Symptom Reduction) On average, patient reported symptoms maintained significant reductions throughout treatment and up to one-year post discharge treatment services.



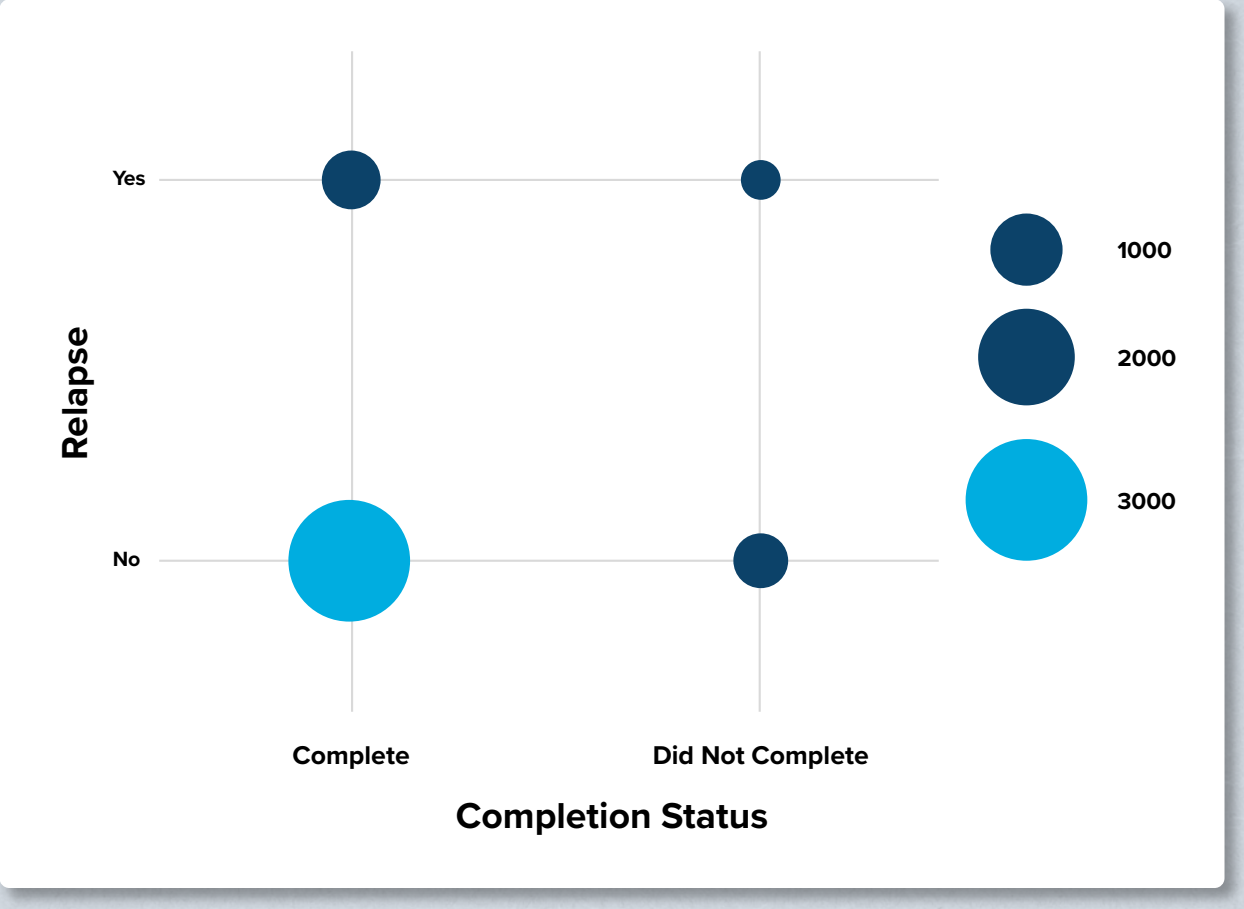
(Decreased Readmission) Patients who engage for longer periods of time in treatment were observed to have better overall post-discharge outcomes (e.g., lower readmission rates).



Note: National readmission rates among those seeking treatment for addiction range between 20-25%[11]. The above data highlight readmission rates for patients served at Cumberland Heights Foundation from 2020-2023. Compared to those who spent more than 30 days in treatment, patients who spent less than 30 days in treatment were 44% more likely to readmit within one year (RR = 1.16, 95% CI [1.11, 1.21], p<0.001).

POST-DISCHARGE RESULTS (FOUR-YEAR REVIEW)

(Increased Abstinence) Patients who successfully completed our programs were observed to have a higher likelihood to report abstinence at one-year post treatment services.



Note: Patients who do not complete treatment are twice as likely to report a relapse, compared to those who do complete treatment (RR = 2.04, 95% CI [1.77, 2.34], p<0.001).

1st in Tennessee

As part of our ongoing commitment to quality patient care, Cumberland Heights Foundation sought and received the American Society of Addiction Medicine's (ASAM) certification for Levels 3.7 (Medically Monitored Inpatient Services) and 3.5 (Clinically Managed Residential Services) (the first provider in Tennessee).

ASAM LEVEL 3.5 CERTIFICATION BY CARF

ASAM LEVEL 3.7 CERTIFICATION BY CARF

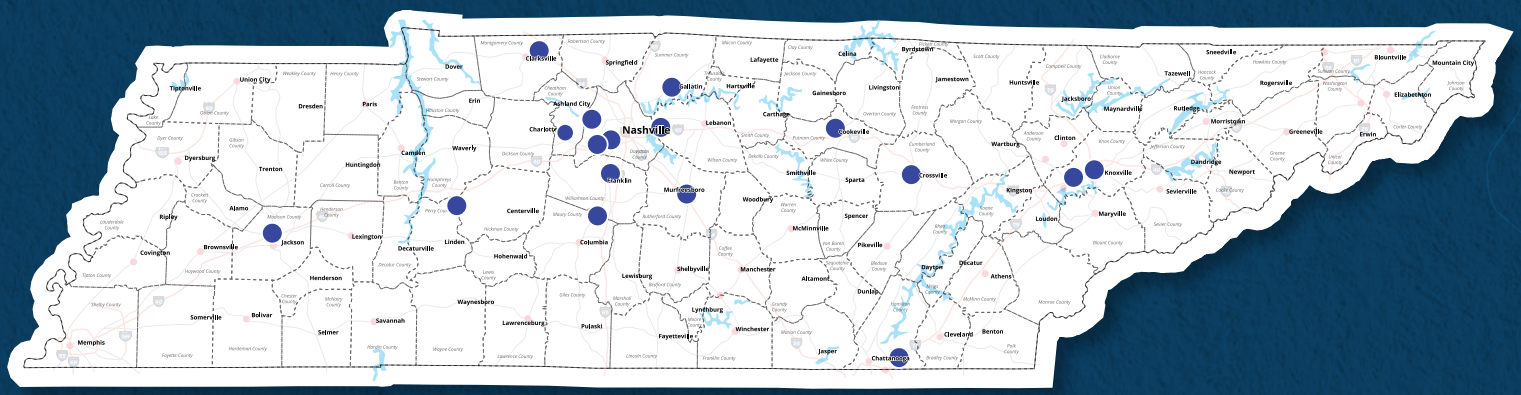
ASAM American Society of Addiction Medicine

Cumberland Heights at a Glance

Mission
To transform lives, giving hope and healing to those affected by alcohol or drug addition.

Locations
Eighteen **(18)** locations throughout Tennessee

Employees
350 Employees



Patients
On average, treating **2,500** patients every year

Telehealth
Intensive Outpatient and Individual Psychotherapy

Treatments
Detox, Residential, Extended Care, Intensive Outpatient, Outpatient, Family Care, and more.

REFERENCES

[1] Lambert, M. J., Harmon, C., Slade, K., Whipple, J. L., & Hawkins, E. J. (2005). Providing feedback to psychotherapists on their patients' progress: Clinical results and practice suggestions. Journal of Clinical Psychology, 61(2), 165-174.

[2] Scott, K., & Lewis, C. C. (2015). Using measurement-based care to enhance any treatment. Cognitive and Behavioral Practice, 22(1), 49-59.

[3] American Psychological Association (APA) Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. American Psychologist, 61, 271–285.

[4] Löwe, B., Kroenke, K., Herzog, W., & Gräfe, K. (2004). Measuring depression outcome with a brief self-report instrument: sensitivity to change of the Patient Health Questionnaire (PHQ-9). Journal of Affective Disorders, 81(1), 61-66.

[5] Spitzer, R. L., Kroenke, K., Williams, J. B., & Patient Health Questionnaire Primary Care Study Group. (1999). Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Journal of the American Medical Association, 282(18), 1737-1744.

[6] Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. Archive of Internal Medicine in Journal of the American Medical Association, 166(10), 1092-1097.

[7] Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. Medical Care, 46(3), 266-274.

[8] McHugh, R. K., Trinh, C. D., Griffin, M. L., & Weiss, R. D (2021). Validation of the craving scale in a large sample of adults with substance use disorders. Addictive Behaviors. 113.

[9] Heinz, A. J., Epstein, D. H., Schroeder, J. R., Singleton, E. G., Heishman, S. J., & Preston, K. L. (2006). Heroin and cocaine craving and use during treatment: measurement validation and potential relationships. Journal of Substance Abuse Treatment, 31(4), 355-364.

[10] Vilsaint, C. L., Kelly, J. F., Bergman, B. G., Groshkova, T., Best, D., & White, W. (2017). Development and validation of a Brief Assessment of Recovery Capital (BARC-10) for alcohol and drug use disorder. Drug and Alcohol Dependence, 177, 71-76.

[11] Morel, D., Kalvin, C. Y., Liu-Ferrara, A., Caceres-Suriel, A. J., Kurtz, S. G., & Tabak, Y. P. (2020). Predicting hospital readmission in patients with mental or substance use disorders: a machine learning approach. International Journal of Medical Informatics, 139, 104-136.

2023
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