cumberland heights | Still Waters | ARCH ACADEMY | ADOLESCENT RECOVERY OF CUMBERLAND HEIGHTS | Research Institute Cumberland Heights

2021 OUTCOMES REPORT

Cumberland Heights Foundation

Produced by the Research Institute

CONTENTS

Summary

The 2021 calendar year was a banner year for the Research Institute at Cumberland Heights Foundation. Our team is proud to share our progress, highlight treatment outcomes observed in 2021, and identify our future strategic goals. The following milestones were all achieved in 2021:

✔ **Maintained our Measurement Based Care and Post Discharge data collection systems, surpassing (n = 500,000) unique waves of patient data.**

✔ **Expanded the SUD Outcomes Network membership and surpassed (n = 6,000) unique episodes of care into the system.**

✔ **Supported the development and founding of National Association of Addiction Treatment Professionals (NAATP) Clinical Outcomes Data Repository.**

Over the last four years, Cumberland Heights 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. In 2019, we expanded that measurement program to include more indices of measurement and leveraged those data internally to assist clinical programs with dynamic monitoring of patient symptomatology. In 2020, we extended our measurement program beyond treatment and up to one-year post-discharge. In 2021, we assisted in the development of the largest de-identified SUD dataset ever created. Over the coming years, that dataset will serve our field in supporting the research questions we haven't yet identified.

The growth of our Measurement Based Care program 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. Patient observed outcomes maintained statistically significant reductions through the first year post discharge (e.g., Depression and Anxiety).

- Decreased Readmission. Successful engagement in our continuum of care (i.e., >30 participation) was shown to be associated with lower readmission rates.

- Increased Abstinence Patients who successfully completed treatment reported increased recovery engagement and decreased adverse health consequences (as compared to those who did not complete).

The motivation of our work remains centered on helping those who suffer from Substance Use Disorders (SUD). We believe that our research practices help to improve our treatments, better inform our patients, and help to support our larger 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

About Us

The Research Institute at Cumberland Heights Foundation was founded in 2018 with the expressed mission to support patient change through research. Since that time, our measurement programs have collected over 500,000 unique waves of longitudinal data.

We believe that our research and data science processes help support treatment efficacy. By increasing our ability to effectively monitor patient change, our teams are better able to identify how our treatments effect patients who choose Cumberland Heights, increase our insight into process improvements, and help to illuminate which treatments are most appropriate for each unique patient.

Research agenda

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 observed relationship 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?

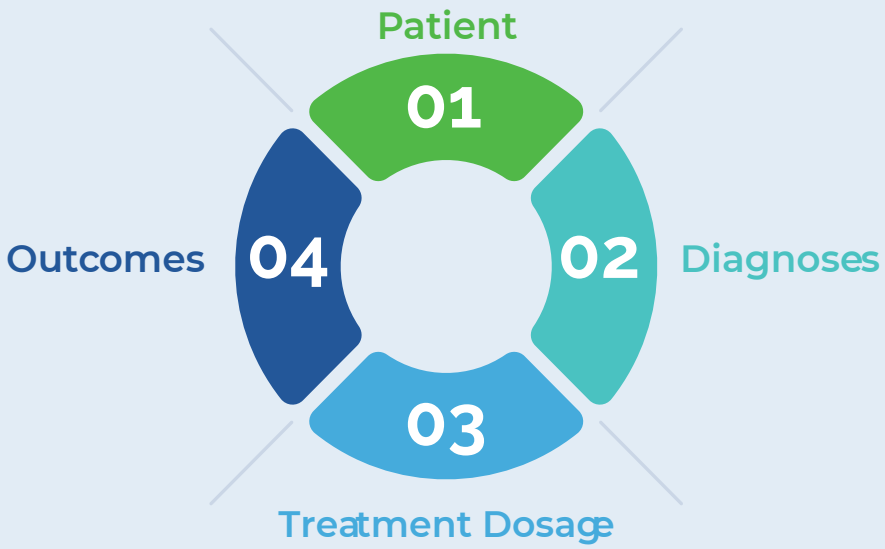
The application of measurement processes within treatment science remains fundamentally critical. Measurement provides the bedrock for any practice to determine treatment efficacy. For without measurement, how can we ensure our treatments are effective? The practice of measurement increases our ability 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 the 'blood pressure' of the mind, we believe these practices to be a part of the evidenced based future of efficacious SUD treatment.

What do we measure?

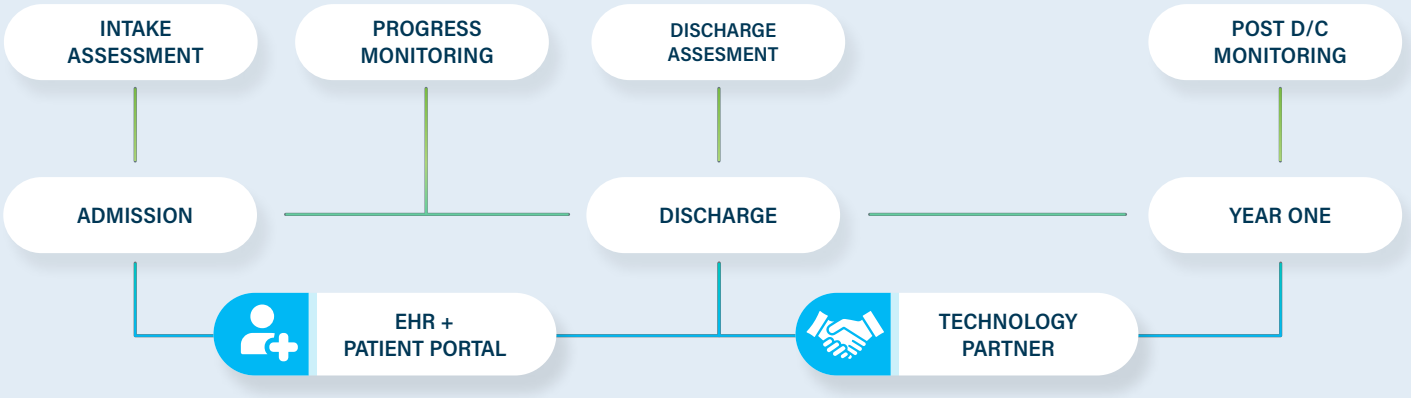
The goals of our MBC system are grounded in both clinical and research utility. By leveraging psychometrically valid tools throughout treatment course and post-discharge acute treatment intervention; our teams are better equipped to maintain efficacious treatment dosage (as evidenced by observed change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

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

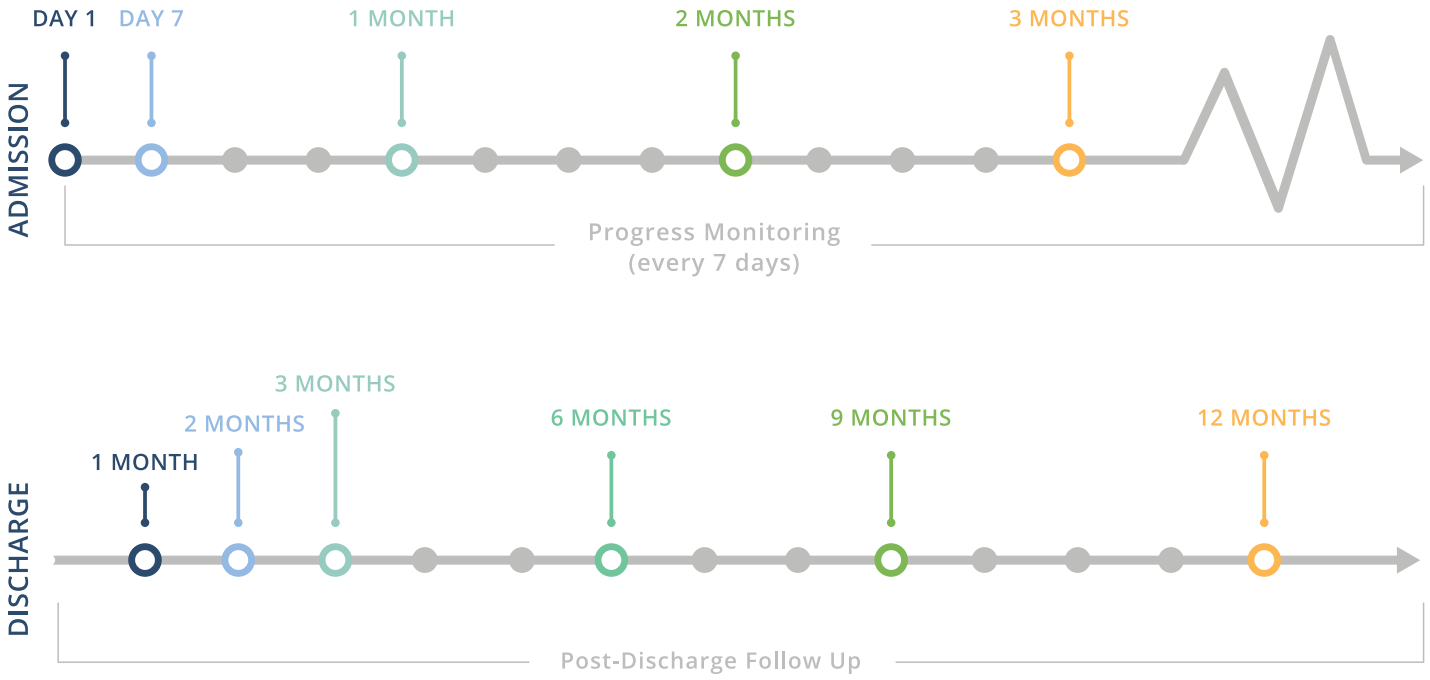


How do we collect data?

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 = 511)
Average Length of Stay: 31.28 Days

Average Age 42 Years
Age Range 18-79

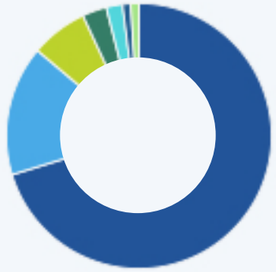
Male Demographic Information
Sample (n = 1537)
Average Length of Stay: 33.85 Days

Average Age 39 Years
Age Range 18-77

Female Marital Status

- Single 39%
- Married 37%
- Divorced 15%
- Separated 4%
- Widowed 2%
- Cohabitating 2%
- Other <1%

Female Primary SUD Diagnosis

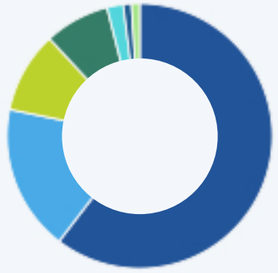


- Alcohol 71%
- Opioid 16%
- Stimulant 7%
- Cannabis 3%
- Sedative-Hypnotic-Anxiolytic 2%
- Inhalant <1%
- Other <1%

Male Marital Status

- Single 50%
- Married 33%
- Divorced 11%
- Separated 3%
- Cohabiting 2%
- Widowed <1%
- Other <1%

Male Primary SUD Diagnosis



- Alcohol 61%
- Opioid 18%
- Stimulant 10%
- Cannabis 8%
- Sedative-Hypnotic-Anxiolytic 2%
- Inhalant <1%
- Other <1%

Female Co-Occurring Diagnosis

- 22% Depressive Disorder
- 16% Anxiety Disorder
- 7% Trauma Disorder

Female Treatment Journey

- 54% Residential
- 30% IOP
- 16% Residential + IOP

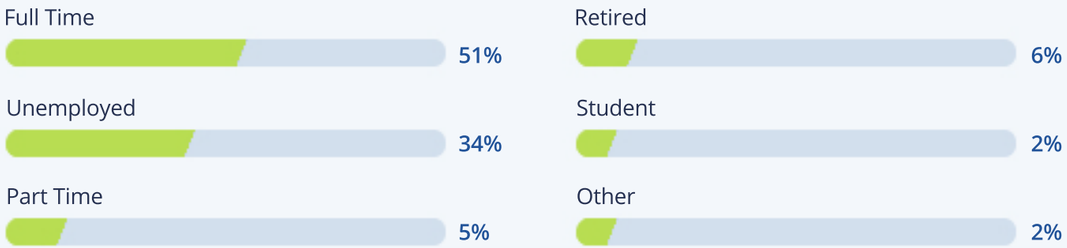
Male Co-Occurring Diagnosis

- 21% Depressive Disorder
- 12% Anxiety Disorder
- 6% Trauma Disorder

Male Treatment Journey

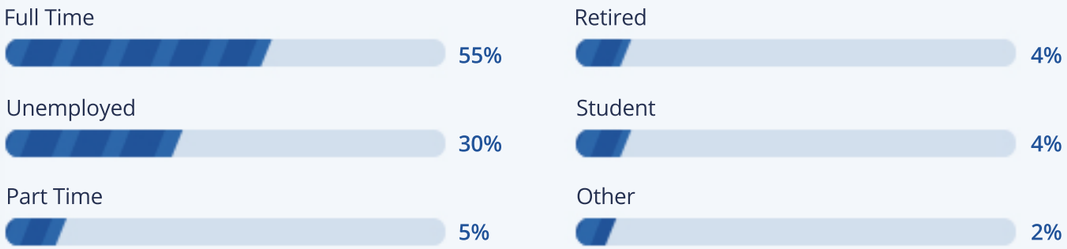
- 61% Residential
- 22% IOP
- 17% Residential + IOP

Female Employment Status



- Full Time 51%
- Unemployed 34%
- Part Time 5%
- Retired 6%
- Student 2%
- Other 2%

Employment Status



- Full Time 55%
- Unemployed 30%
- Part Time 5%
- Retired 4%
- Student 4%
- Other 2%

Progress Monitoring

In 2021, (*n* = 2048) patients were surveyed at regular intervals throughout treatment and for one-year post discharge. Known as Measurement Based Care, our system works to support patient change through measuring reported change states and delivering these results back to clinicians and patients.[2]

Although our Measurement Based Care system uses several indices of measurement, this report will focus on four of them. More specifically, 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 reported a **68% decrease in depression symptoms.**

On average, patients reported a **63% decrease in anxiety symptoms.**

On average, patients spent **34.16 days in our health system.**

On average, patients reported a **74% decrease in craving symptoms.**

On average, patients reported a **13% increase in recovery capital resources.**

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

Symptom Reduction

DECREASED DEPRESSION SEVERITY

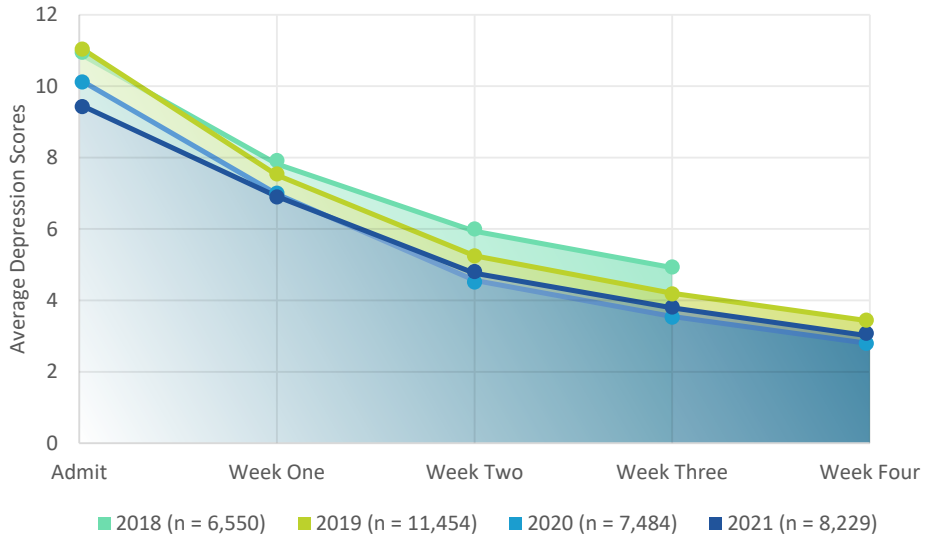
Instrument Description

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 (four-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



68%

Decrease in Depression Symptoms that contribute to Substance Use Disorder

Symptom Reduction

DECREASED ANXIETY SYMPTOMS

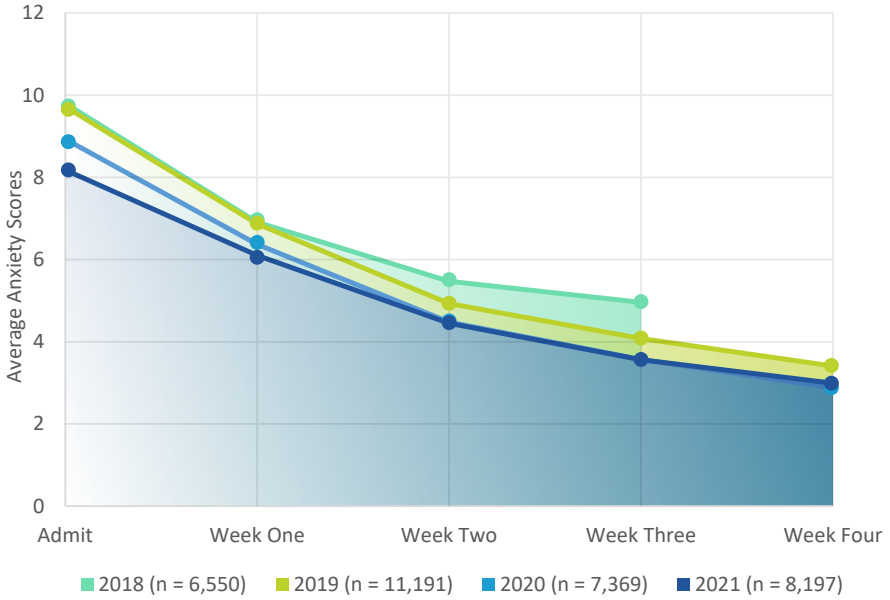
Instrument Description

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 form 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 (four-year comparison)

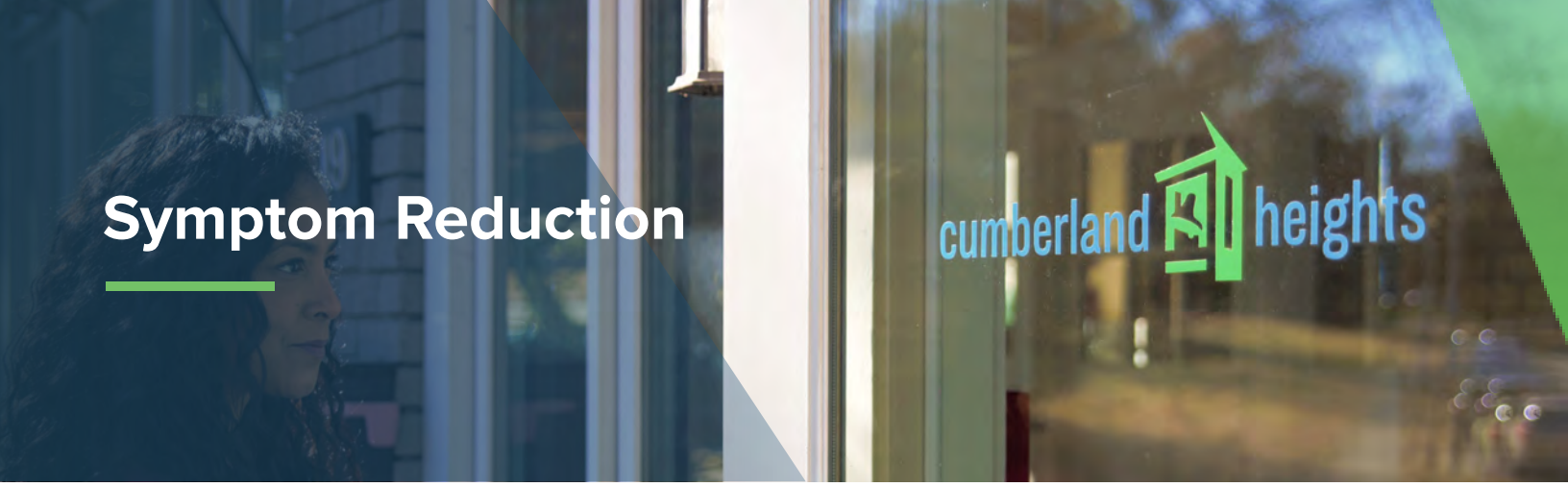
The highlighted visualization uses exploratory data analysis techniques to demonstrate observed variance in average patient symptoms, as measured by the GAD-7. These data highlight the significant positive effect that our treatments have had on patient outcomes throughout engagement in our clinical programs.

OBSERVED REDUCTION IN ANXIETY SYMPTOMS



63%

Decrease in Anxiety Symptoms that contribute to Substance Use Disorder



Symptom Reduction

DECREASED CRAVING SEVERITY

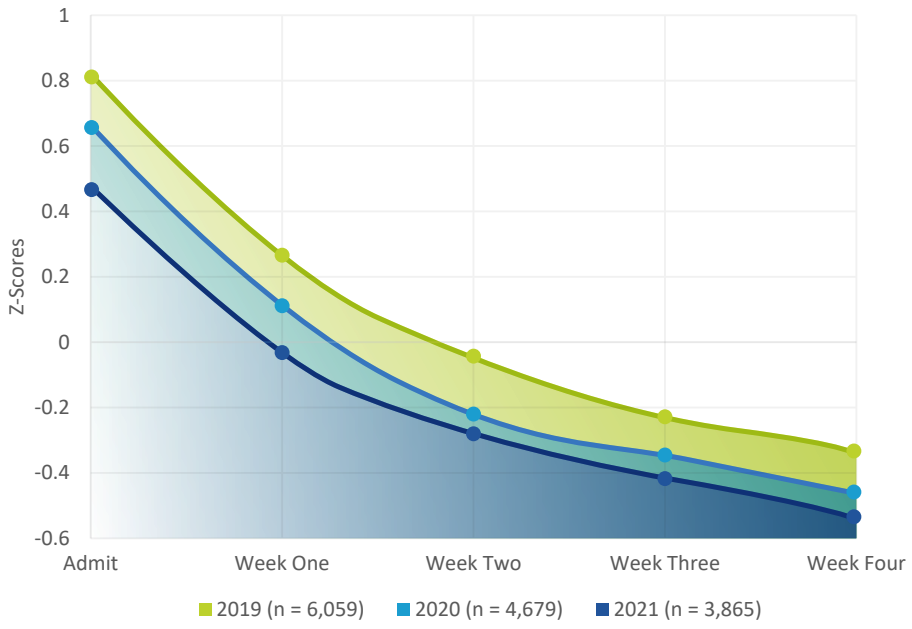
Instrument Description

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 (three-year comparison)

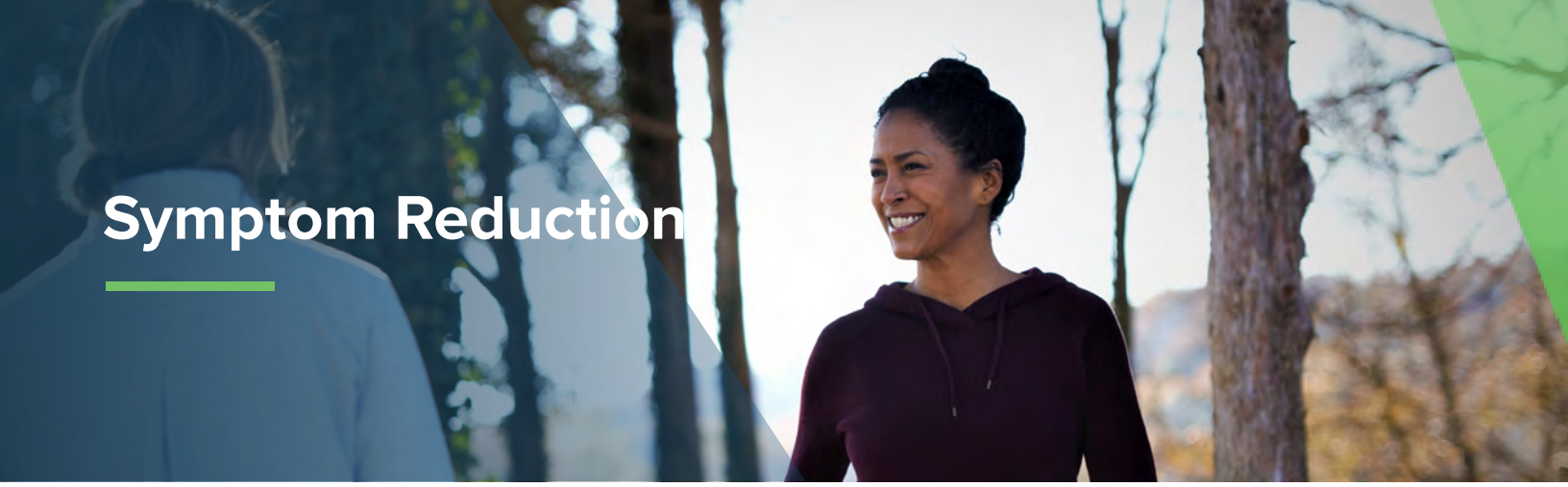
The highlighted visualization uses exploratory data analysis techniques to demonstrate observed variance in z-scores representing changes in patient symptoms, as measured by the Craving Scale in (2021)[8] and the Heroin Craving Questionnaire-Short Form (HCQ-SF-14) between (2019-2020).[9] These data highlight the significant positive effect that our treatments have had on patient outcomes throughout engagement in our clinical programs.have had on patient outcomes throughout engagement in our clinical programs.

OBSERVED REDUCTION IN CRAVING SYMPTOMS



74%

Decrease in Craving Symptoms that contribute to Substance Use Disorder



Symptom Reduction

INCREASED RECOVERY CAPITAL RESOURCES

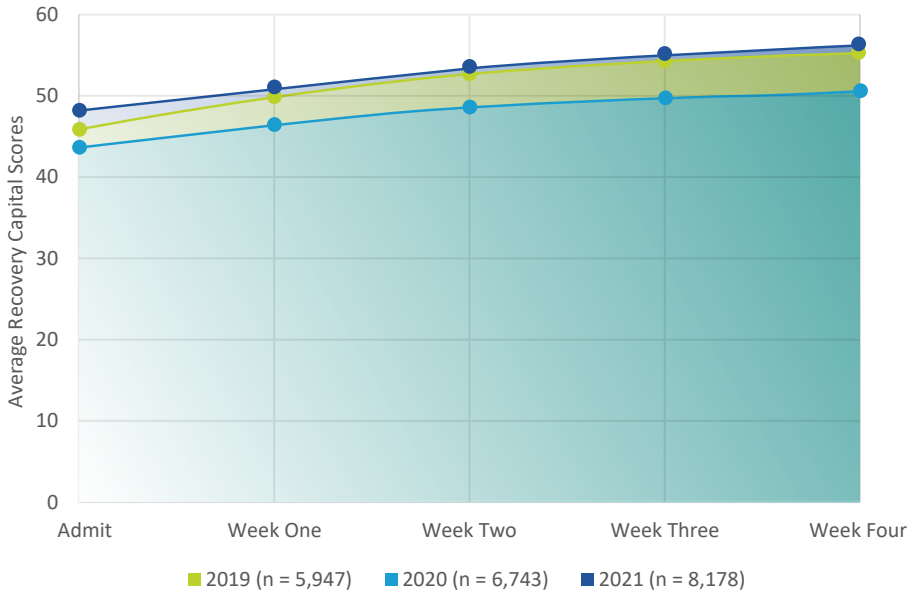
Instrument Description

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 (three-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.our treatments have had on patient outcomes throughout engagement in our clinical programs.have had on patient outcomes throughout engagement in our clinical programs.

OBSERVED INCREASE IN RECOVERY CAPITAL RESOURCES



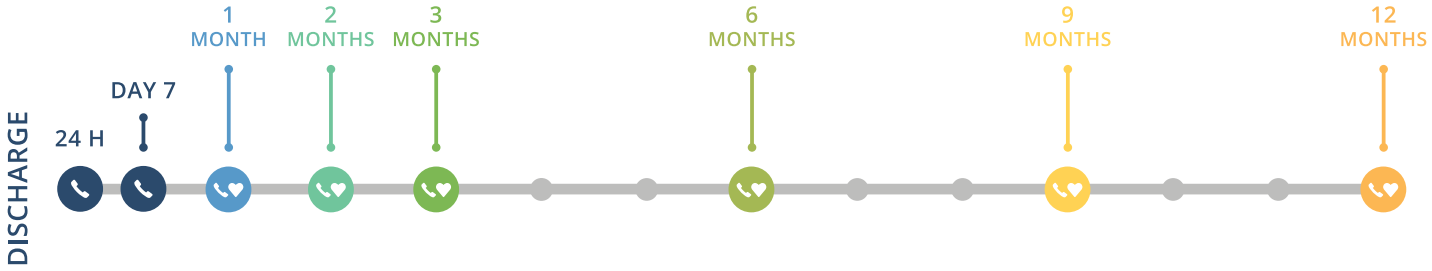
13%

Increase in recovery capital resources that can support sustained recovery

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 supports, 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)[8]
- 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.*

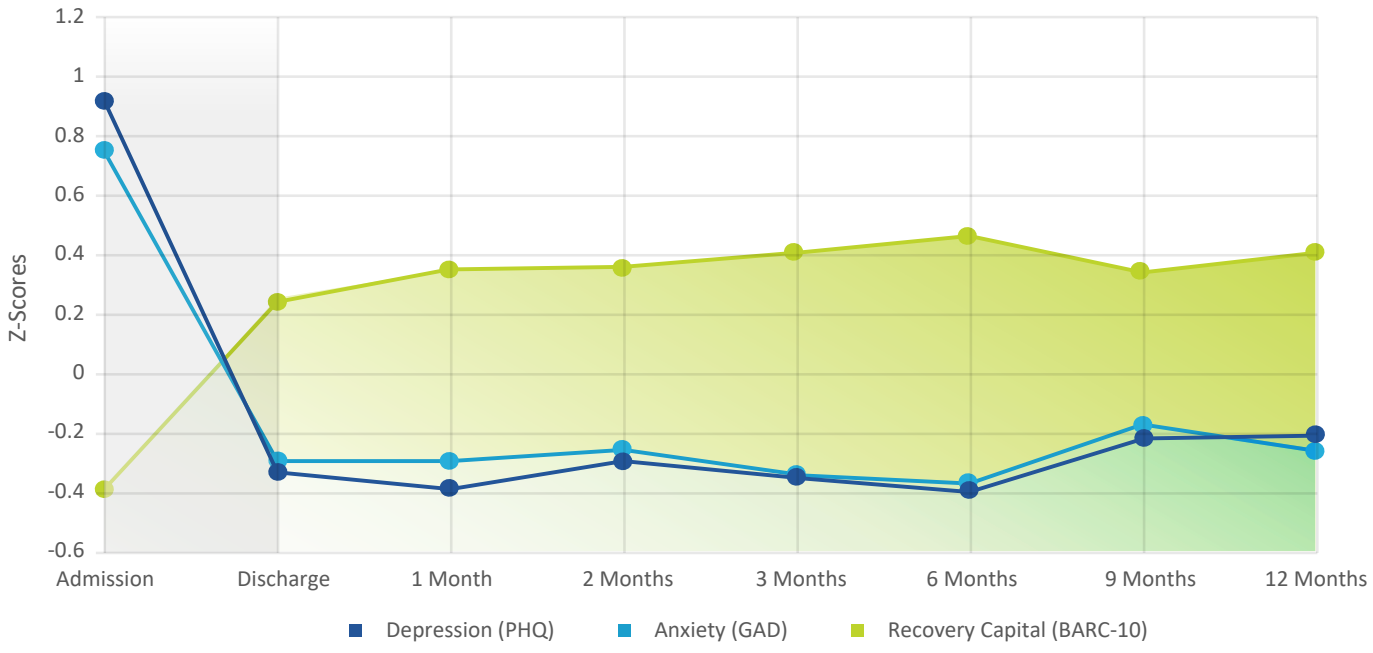
Post-Discharge Results (Two-Year Review)

The following data (n = 2,596) were collected from (01/01/2020-12/31/2021). The sample remains homogeneous (72% Male, 86% Caucasian, 65% Alcohol Use Disorder, 69% Completed Treatment, with an Average Age of 39 years, and an Average Length of Stay of 33 days). These observations are representative of 25% successful follow up for the sample identified above. These data demonstrate treatment efficacy observed through data collected over the last two years.

Longitudinal Symptom Reduction. Patient observed outcomes maintained statistically significant reductions through the first year post discharge (e.g., Depression and Anxiety).

Decreased Readmission. Successful engagement in our continuum of care (i.e., >30 participation) was shown to be associated with lower readmission rates.

Increased Abstinence. Patients who successfully completed treatment reported increased recovery engagement and decreased adverse health consequences (as compared to those who did not complete).



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

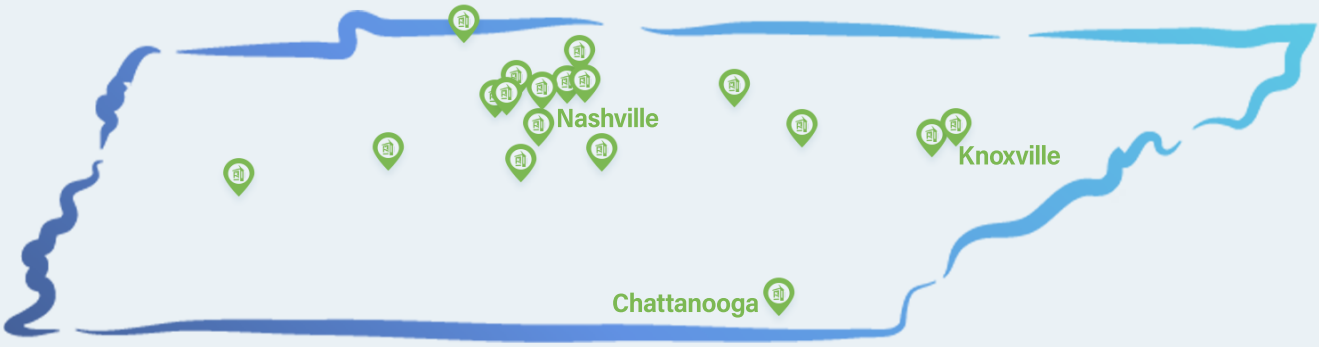
Cumberland Heights at a Glance

MISSION

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

LOCATIONS

Twenty (**20**) 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.

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[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.

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[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.

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