Critical Time Intervention

NC Results First Program Evaluation

Through the North Carolina Results First Initiative, the Department of Health and Human Services' Adult Mental Health Section (AMH) and the Office of State Budget and Management (OSBM) reviewed high-quality research evidence to determine the effectiveness of Critical Time Intervention (CTI). The program assists individuals with serious mental illness and a history of homelessness navigate a critical transition to obtain and maintain independent housing.

Research evidence shows that CTI is effective at reducing homelessness, as well as the frequency of psychiatric hospitalizations, and negative psychosis symptoms.

AMH and OSBM also used benefit-cost analysis tools to estimate the program's return on investment. Reducing homelessness is the program's primary objective. Research found that CTI participants had 1.5-3.6 times lower odds of experiencing one or more homeless nights over an 18-month follow-up period.[1],[2] However, this positive outcome could not be monetized due to inconsistent measures of homelessness and the challenges of accurately estimating homelessness rates among the state's target population. Therefore, this analysis provides only a partial return on investment.

Program Description

CTI is a multi-phase treatment model that bridges the gap between critical transitions, such as long-term psychiatric hospitalizations, homelessness, institutionalization, or incarceration, and housing or community services. The program provides recovery-oriented, psychiatric rehabilitation, and community integration. Interventions may connect individuals to community supports such as peer support specialists, housing first or tenancy supports, medication management, outpatient therapy, employment services, primary and substance use care, and psychosocial rehabilitation.

Monetized Benefits

Reduced medical expenditures from avoided psychiatric hospitalization is the only monetized outcome for CTI. On average, for every individual who participates in the program, we can expect a benefit of $2,172 related to a reduction in the occurrence of psychiatric hospitalization.

Benefit-Cost Analysis

When considering CTI's effect on psychiatric hospitalization reduction only, the program delivery costs of $6,983 per person exceed the value of the expected hospitalization savings of $2,172 resulting in a net loss of $4,812 per person, a return of 31 cents per dollar invested in the program. The value of the program's positive effect on homelessness and psychiatric symptoms is unknown. Accounting for variation in key estimates, there is a 29 percent chance that the benefits will exceed the costs CTI is used as an intervention for adults with serious mental illness.

CTI is comprised of four distinct steps, totaling 352 fifteen-minute units. On average, about 90 to 95% of participants complete all four steps- or 317 units. As AMH has set a standard per unit rate of $20.64, this results in a per participant cost of $6,983.

Table 1: Benefit-Cost Summary Explanation (2020 Dollars)

Benefits per participant	
Psychiatric Hospitalization	**$ 2,172**
Homelessness	*Unmonetized*
Psychiatric Symptoms	*Unmonetized*
Psychosis Symptoms	*Unmonetized*
Costs per participant	**$ (6,983)**
Benefits less costs	**= $ (4,812)**

$ 0.31 per dollar invested
Benefit to cost ratio

29%
Likelihood benefits will exceed costs

Of the $2,172 in per person benefits, taxpayer-funded medical care savings account for $1,753, while participants are expected to save $24 in out-of-pocket costs. A total of $395 in other benefits, such as those from employer-paid health insurance, are expected over a participant's lifetime.

Table 2: Benefits by Perspective	
Taxpayer	**$1,753**
Federal	*$1,275*
State	*$477*
Participants	**$24**
Other	**$395**
Total	**$2,172**

Non-Monetized Outcomes

This analysis does not capture the full value of CTI's proven benefits. Research evidence shows CTI reduces the odds that participants will experience homelessness, but the associated benefits are not monetizable and are not reflected in the return-on-investment results. Current research is not sufficiently rigorous to confidently measure the program's effect on psychiatric and psychosis symptoms. As a result, these outcomes could not be monetized.

Recommendations & Next Steps

Explore Feasibility of Monetizing CTI's Effect on Homelessness

Current available research found that individuals who participate in CTI are less likely to experience homelessness following program completion. However, the positive effect of CTI on homelessness could not be monetized through this analysis due to the difficulty of accurately estimating baseline homelessness rates among the target population, inconsistent measures of homelessness in the research, and the challenges of valuing the cost of homelessness in the state.

AMH will explore the feasibility of addressing these research and data gaps, in partnership with academic researchers, to provide a more complete estimate of CTI's benefits for individuals with serious mental illness.

Expand the Availability of CTI Across the State

AMH recommends that one CTI team is housed within each Local Management Entities – Managed Care Organizations (LME-MCO) to ensure that CTI is available across the state. One team currently operates in central North Carolina. AMH plans to release a Request for Application (RFA) in spring 2022 to support the start-up of two new CTI teams that are expected to begin serving individuals in early SFY 2023.

Ensure CTI Teams Are Implementing the Program to Fidelity

Although AMH has a fidelity monitoring tool, all fidelity monitoring has been "paused" during the NC State of Emergency and CTI services are being offered via telehealth although CTI is most effective as a face-to-face program. Therefore, following the reinstation of in-person services, the AMH team plans to monitor program fidelity to ensure CTI teams across the state are implementing the program to reflect the NC state-funded service definition.

Collect State Specific Outcome Data

Though the research used in this analysis confidently estimates CTI's impact on North Carolinians, it is not state specific. Once CTI services return to in-person treatment, AMH plans to track client outcomes including incarceration, homelessness and housing status, and hospital emergency department visits. Tracking these three outcomes will allow AMH to collect state-specific data and determine whether participants are achieving the expected program outcomes based on the research literature.

1. Conover, S., Gorroochurn, P., Hinterland, K., Hoepner, L., & Susser, E. S. (2011, July). Randomized trial of Critical Time Intervention to prevent homelessness after hospital discharge. Psychiatric services (Washington, D.C.). Retrieved December 20, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3132151/
2. Susser E;Valencia E;Conover S;Felix A;Tsai WY;Wyatt RJ; (n.d.). Preventing recurrent homelessness among mentally ill men: A "Critical time" intervention after discharge from a shelter. American journal of public health. Retrieved December 20, 2021, from https://pubmed.ncbi.nlm.nih.gov/9103106/