

FLETCHER GROUP ECONOMIC CALCULATOR

RESULTS REPORT

PREPARED FOR: TENNESSEE ALLIANCE OF RECOVERY RESIDENCES

MAY 27TH, 2026

RECOMMENDED CITATION: Ashworth, M., Johnson, D., & Thompson, R. (2024). Adaptable Tool for Modeling the Benefits and Costs of Substance Use Disorder Recovery Programs. *Journal of Benefit-Cost Analysis*, 15(2), 335–350. doi:10.1017/bca.2024.26

This report was supported by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) under grant number UD9RH33631-01-00 as part of an award totaling \$3.3 M with 0% financed with non-governmental sources. The contents are those of the authors and do not necessarily represent the official views of, nor endorsed by HRSA, HHS, or the US Government. As the Rural Communities Opioid Response Program (RCORP)-Rural Center of Excellence on SUD Recovery provides access to a wide range of resources on relevant topics. Inclusion on this webpage and/or document does not imply endorsement of, or agreement with, the contents by FGI or the Health Resources and Services Administration.

**FOR QUESTIONS, PLEASE CONTACT DR. MADISON ASHWORTH
(MASHWORTH@FLETCHERGROUP.ORG).**

INTRODUCTION

Substance use disorder (SUD) is a pressing issue in the state of Tennessee, with the rate of drug overdose deaths increasing from 31.2 per 100,000 residents in 2019 to over 35.2 deaths per 100,000 residents in 2024, a 13% increase in 5 years.¹ An estimated 16% of Tennessee residents ages 12 and older met the criteria for a drug or alcohol use disorder from 2023-2024, many of whom did not receive treatment for their SUD.²

SUD imposes significant costs on society via healthcare costs, criminal justice costs, lost productivity costs, family and generational impacts, and emotional costs. The total economic cost of SUD in the U.S. in 2019 was estimated to be approximately \$3.7 trillion when including direct costs related to healthcare, criminal justice, productivity, public assistance administration, research and prevention, and indirect costs related to quality of life lost.³ An analysis of the economic impact of opioid use disorder in Tennessee found that opioid use disorder and associated fatal opioid overdoses cost the state of Tennessee \$24.4 billion in 2017.⁴ As such, expanded recovery support services for individuals with SUD have the potential to yield significant economic benefits.

An important recovery support service for individuals with SUD is recovery housing, a housing model that provides safe, healthy, family-like substance free living environments for those seeking recovery from SUD.^{5,6} Recovery housing has been found to be associated with improved recovery related outcomes, including reduced substance use, criminal justice involvement, anxiety, depression, and homelessness, and increased employment and income.⁷⁻¹⁰ Although the exact number of recovery residences in the U.S. is unknown, the latest estimates suggest there are approximately 10,000 – 17,000^{11,12} As of May 2026, there were approximately 40 recovery housing organizations certified by the Tennessee Alliance of Recovery Residences (TN-ARR).¹³

Cost-benefit analyses are important to demonstrate the value of treatment services, address community opposition and stigma, and to demonstrate local impacts at the state level to secure funding and state support. In this report, we examine the economic costs and benefits associated with TN-ARR-certified recovery housing organizations using the Fletcher Group Economic Calculator. Specifically, we look at the economic impact of a representative TN-ARR-certified recovery housing organization as well as the cumulative economic impact of all TN-ARR-certified organizations.

METHODS

In this report, we provide results from the Fletcher Group Economic Calculator, a customizable cost-benefit analysis developed by the RCORP-Rural Center of Excellence on Substance Use Disorder (SUD) Recovery at the Fletcher Group.¹⁴ This tool is designed to be utilized by recovery organizations such as recovery houses and recovery community organizations based in the United States. The cost-benefit analysis includes economic benefits associated with recovery program engagement, such as avoided healthcare utilization, reduced criminal justice

involvement, and increased market and household productivity, as well as increased health and well-being as reflected by reduced morbidity and premature mortality.

Avoided Healthcare Costs: The model estimates the healthcare costs associated with SUD, including those associated with inpatient and outpatient hospital stays, health insurance administration, crime victim healthcare, treatment, and other costs associated with emergency services and prescription drugs, using data from the Recovery Centers of America and the National Survey of Drug Use and Health.^{3,15}

Avoided Criminal Justice Costs: Criminal justice costs are estimated using state level criminal justice expenditures, including wages, capital outlays, and other expenditures related to police protection, judicial and legal functions, and the Department of Corrections, provided by the Bureau of Justice Statistics.¹⁶

Avoided Productivity Costs: Productivity costs associated with SUD, including all the labor market and household productivity lost due to premature death, incarceration, and absenteeism, are estimated using data from the Recovery Centers of America.³

Value of Mortality and Morbidity Risk Reductions: The value of mortality and morbidity risk reductions is estimated using the value of a statistical life year (e.g., the economic measure of an individual's willingness to pay for health risk reductions¹⁷) and quality-adjusted life year (e.g., a measure of the increased well-being of improved health status¹⁸) concepts. With these concepts, the model estimates the value of improved health status and reduced premature mortality risk per year.

The economic costs included in the model are the annual operating costs, including staffing, supplies, and programming, as well as any capital costs related to infrastructure and land purchases. All economic cost figures are provided directly by the recovery organizations.

A complication of conducting cost-benefit analyses of recovery programs is modeling the recovery process itself. SUD recovery is often not a linear process where a treatment intervention occurs, and a person enters recovery for the rest of their life. SUD is characterized as a chronic, relapsing disease, and studies have shown that people seeking recovery have an average of five recovery attempts before long-term recovery is achieved.¹⁹ Further, once long-term recovery is achieved, there may be a delay before the benefits of recovery accrue. Research assessing different aspects of recovery across time, including recovery capital, quality of life, and psychological distress, found that many recovery indicators take between 2 and 5 years to reach levels of individuals across those aspects who do not have a SUD.²⁰ As such, we include a parameter to model the delay of recovery benefits and discuss how results may change as a result of this time lag.

A full description of the methods used in this report may be found here: [Fletcher Group Economic Calculator Methodology](#).

Data to inform this state-level report were collected by TN-ARR staff. Of the 40 certified organizations at the time of data collection, a total of 21 (53%) opted to provide data and receive a cost-benefit report, an incentive offered for the time taken to complete the survey. In the following report, we present the results from two different analyses. First, we present the economic impacts of an average TN-ARR-certified recovery housing organization based on the data provided. Second, we calculate the total economic impact of all TN-ARR-certified recovery housing in the state.

RESULTS

The characteristics of a representative recovery housing organization were determined by taking the median of the operating costs, start-up costs, number of residents served, and success rate of the 21 recovery housing operators who provided data. Table 1 provides an overview of the recovery housing organization’s characteristics, which serve as inputs into the economic model.

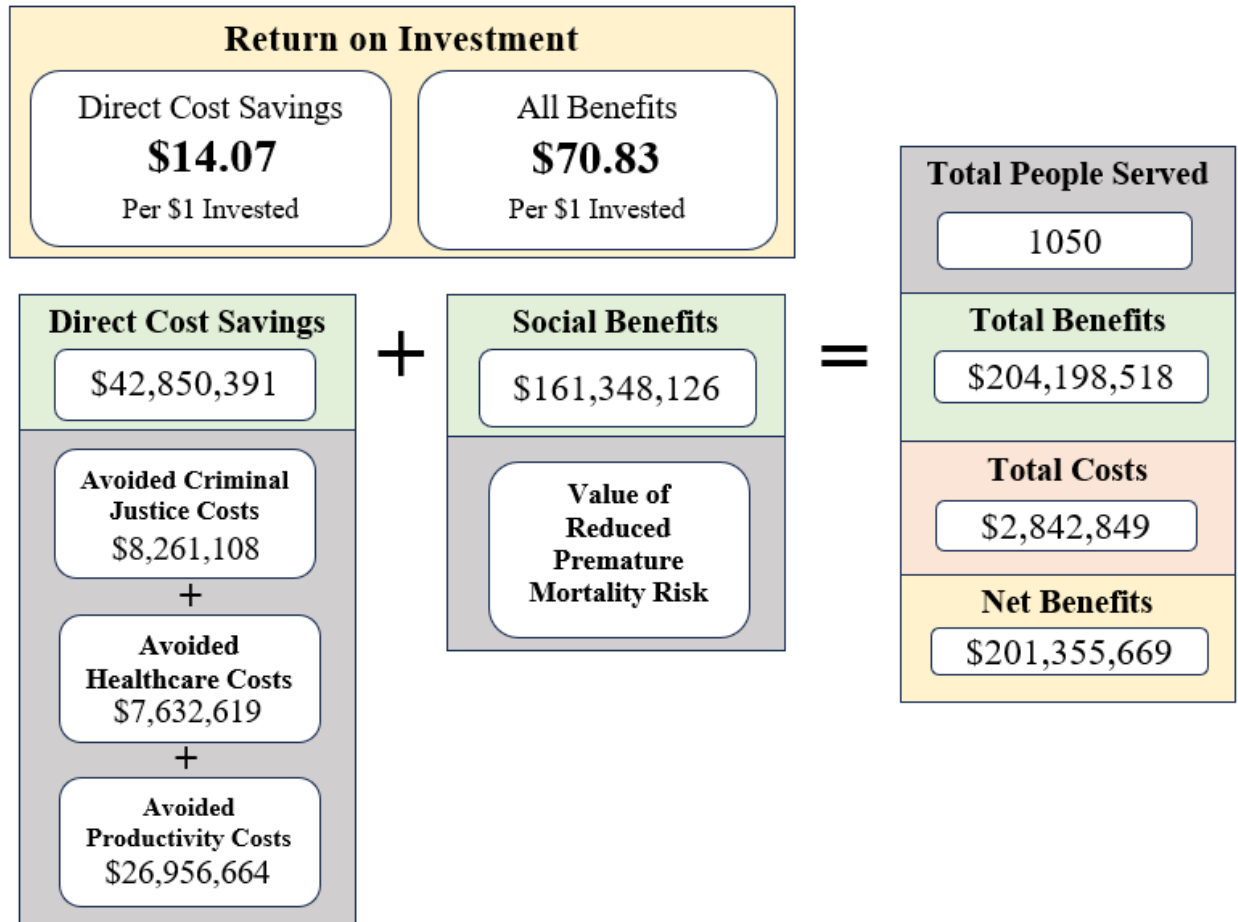
TABLE 1. REPRESENTATIVE TN-ARR-CERTIFIED RECOVERY HOUSING ORGANIZATION CHARACTERISTICS

Annual Operating Cost	\$156,000
Start-Up Cost	\$50,000
State	Tennessee
Success Rate	42%
Number of Residents Served Annually	70

A representative TN-ARR certified recovery housing program serves approximately 70 individuals each year and spends \$156,000 each year on operating costs. The program invested \$50,000 in start-up and/or capital costs. Of the 70 individuals the program serves each year, 42% enter long-term recovery after departing from the program.

First, we present the economic impact of a representative TN-ARR-certified organization across 15 years with no time lag of benefits (Figure 1).

FIGURE 1. ECONOMIC IMPACT OF A REPRESENTATIVE TN-ARR-CERTIFIED RECOVERY HOUSING ORGANIZATION OVER 15 YEARS WITH NO TIME LAG OF BENEFITS



The benefits of the recovery program can be divided into *Direct Cost Savings* in the form of avoided criminal justice, healthcare, and productivity costs, and *Social Benefits* in the form of reduced premature mortality risk, or the reduction in deaths occurring before the average age of death in a particular population. **The total benefit of one person in recovery in Tennessee is \$74,672 per year.**

A representative TN-ARR certified organization yields approximately \$204 million in total benefits over 15 years. Approximately 21% (\$43 million) was due to cost savings to the state, with 4% due to avoided criminal justice costs (\$8 million), 4% due to avoided healthcare costs (\$8 million), and 13% due to avoided productivity costs (\$27 million). **Accounting for only the direct cost savings attributable to the program, the cost savings return on investment (csROI) over 15 years was \$14 in direct cost savings per dollar invested.**

When factoring in the program’s impact on participants’ health and survival, the program generates about \$161 million in economic value by reducing premature death and illness among

successful participants. The representative TN-ARR certified organization’s operating costs over 15 years (adjusted to present value) are about \$2.8 million. After subtracting these costs, the net benefits equal \$201 million over a 15-year period, reflecting the full range of societal benefits tied to the program. **The program yields a social return on investment (sROI) of \$71 for every \$1 spent over 15 years.**

Next, we show how the economic benefits of the recovery program change based on more conservative modelling of the recovery process (Table 2). Time delays in the benefits of recovery help account for the complexities of recovery, including return to use episodes. In the *No Delay* scenario, the benefits of an individual’s recovery begin accruing immediately after they leave the recovery program. In the *2-Year Delay* and *5-Year Delay* scenarios, individuals leaving the recovery program accrue a fraction of the full suite of benefits of recovery until 2 or 5 years after leaving the program. This delay in benefits models a common stabilization period in early recovery. This model also accounts for potential return to use episodes a person may have in the immediate years after leaving the recovery program.

TABLE 2. ECONOMIC IMPACT OF A REPRESENTATIVE TN-ARR-CERTIFIED RECOVERY HOUSING ORGANIZATION OVER 15 YEARS ACROSS DIFFERENT MODELS OF RECOVERY

Variable	No Delay	2-Year Delay	5-Year Delay
<i>Total Benefits</i>	\$204,198,518	\$190,324,421	\$140,716,105
<i>Total Costs</i>	\$2,842,849	\$2,842,849	\$2,842,849
<i>Net Benefits</i>	\$201,355,669	\$187,481,573	\$137,873,257
<i>Total Return on Investment</i>	\$70.83	\$65.95	\$48.50

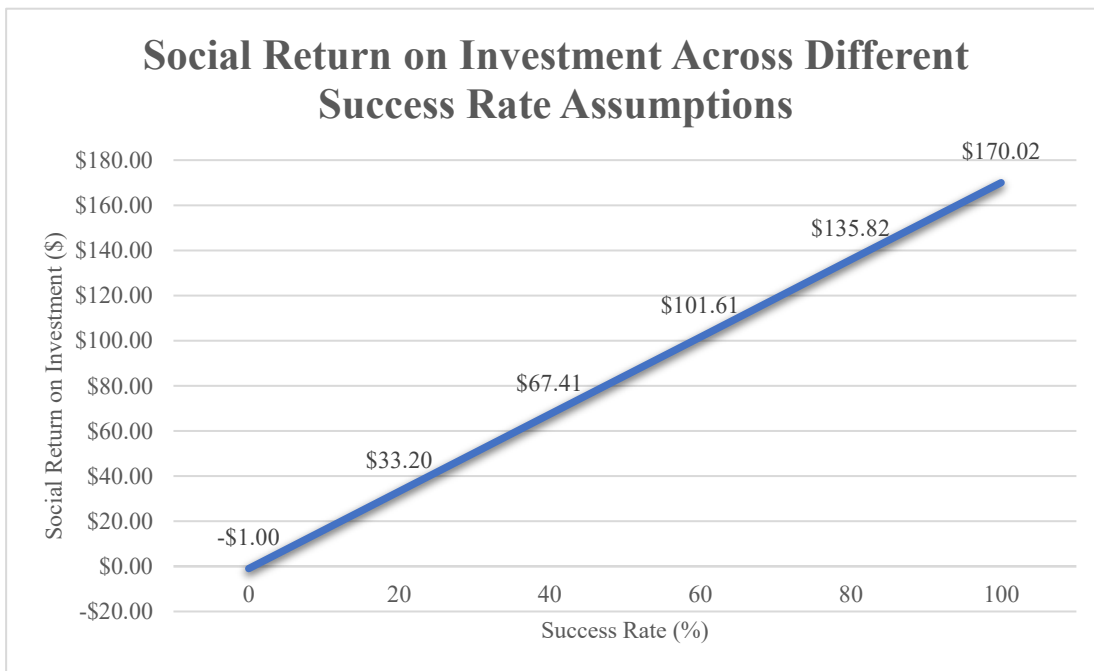
Accounting for the lag in benefits that may be associated with recovery decreases the net benefits of the program by approximately 7% under the two-year delay scenario or approximately 32% under the 5-year delay scenario. However, even under the most conservative modelling of recovery involving a 5-year delay in benefits, the net benefits of the program are positive at \$138 million, and the return on investment is \$48.50 per dollar invested.

As the success rate of the program can be the most difficult to estimate accurately and is often most important to funders, we also calculate the present value of net benefits and total return on investment for different success rates (Table 3). In this analysis, we use the baseline recovery model that does not incorporate any delay in benefits. **Note, most recovery programs have an estimated success rate (e.g., the percentage of individuals served by the program that goes into long term recovery) of between 20% to 40%.**

TABLE 3. NET BENEFITS AND TOTAL RETURN ON INVESTMENT FOR A REPRESENTATIVE RECOVERY HOUSING ORGANIZATION OVER 15 YEARS ACROSS DIFFERENT SUCCESS RATE ASSUMPTIONS

Success Rate (%)	Net Benefits	Total Return on Investment
0	-\$2,842,849	-\$1.00
20	\$94,394,540	\$33.20
40	\$191,631,900	\$67.41
60	\$288,869,300	\$101.61
80	\$386,106,700	\$135.82
100	\$483,344,100	\$170.02

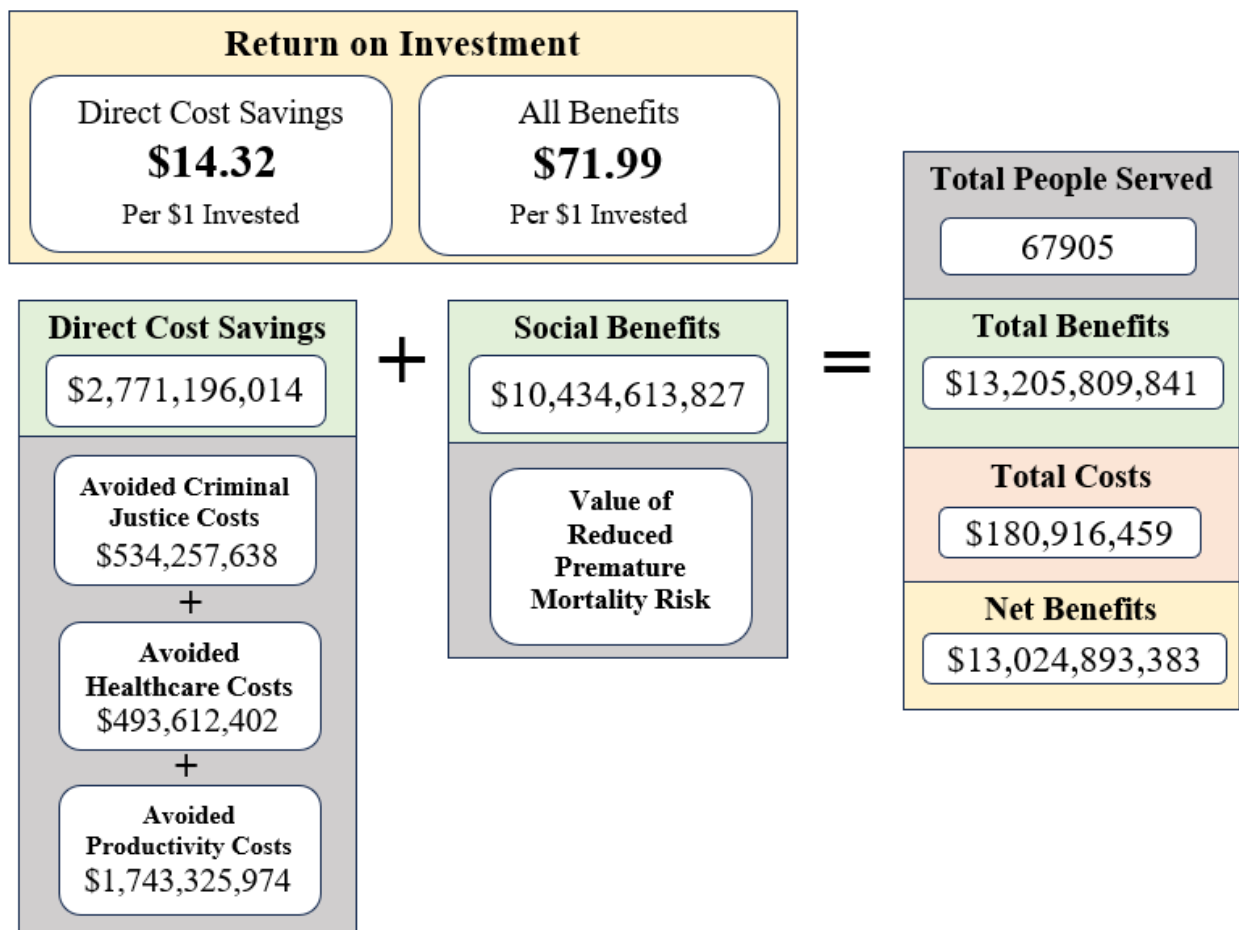
FIGURE 2. RETURN ON INVESTMENT FOR A REPRESENTATIVE RECOVERY HOUSING ORGANIZATION OVER 15 YEARS ACROSS DIFFERENT SUCCESS RATE ASSUMPTIONS



Next, we present the total economic impact of all TN-ARR-certified recovery housing organizations (N = 40).²¹ Specifically, we use estimates of the operating costs and start-up costs provided by the 21 TN-ARR-certified organizations and assume that the 19 TN-ARR-certified organizations that did not provide data have median operating and start-up costs. Across all TN-ARR-certified recovery housing organizations, the total amount spent on operating costs annually is \$9,922,562 and the total amount spent on start-up costs is \$3,485,012. Across all TN-ARR-certified recovery housing organizations, 4,527 residents are served annually.

Figure 3 provides an overview of the total economic benefits, costs, and return on investment of all TN-ARR-certified houses across 15 years.

FIGURE 3. ECONOMIC IMPACT OF ALL TN-ARR-CERTIFIED RECOVERY HOUSING ORGANIZATIONS OVER 15 YEARS



Over the course of 15 years, TN-ARR-certified recovery housing organizations serve approximately 67,905 residents. The total present value of economic benefits for all organizations is approximately \$13.21 billion. The present value of total costs is approximately \$181 million. The present value of the net benefits (i.e., the total benefits minus the total costs) is

approximately \$13.02 billion over 15 years. The total return on investment of the organizations over the course of 15 years is \$72 dollars per dollar invested.

Next, we show how our results from the model will change based on more conservative modelling of the recovery process.

TABLE 4. ECONOMIC IMPACT OF ALL TN-ARR-CERTIFIED RECOVERY HOUSING ORGANIZATIONS OVER 15 YEARS ACROSS DIFFERENT MODELS OF RECOVERY

Variable	No Delay	2-Year Delay	5-Year Delay
<i>Total Benefits</i>	\$13,205,809,841	\$12,308,552,223	\$9,100,311,544
<i>Total Costs</i>	\$180,916,459	\$180,916,459	\$180,916,459
<i>Net Benefits</i>	\$13,024,893,383	\$12,127,635,764	\$8,919,395,085
<i>Total Return on Investment</i>	\$71.99	\$67.03	\$49.30

Accounting for the lag in benefits that may be associated with recovery decreases the net benefits of the organizations by approximately 7% under the two-year time lag assumption or approximately 32% under the 5-year time lag assumption. However, even under the most conservative modelling of recovery involving a 5-year time lag of benefits, the net benefits of the organizations are positive at \$8.92 billion and the return on investment is \$49 per dollar invested.

CONCLUSION

In this report, we examine the economic costs and benefits associated with TN-ARR-certified recovery housing organizations including the economic impacts of a representative TN-ARR-certified organization and the cumulative impact of all TN-ARR-certified organizations. We find that there are significant economic benefits associated with recovery housing in Tennessee, with a representative TN-ARR-certified recovery housing organization yielding an estimated \$138 million in net economic benefits over the course of 15 years under the most conservative modelling of recovery. Further, we find that all TN-ARR-certified recovery housing organizations yield approximately \$8.92 billion in net economic benefits over 15 years under the most conservative modelling of recovery.

The methods within this report have a few limitations to consider. First, the Fletcher Group Economic Calculator does not capture all the costs or benefits associated with recovery. The model does not account for the generational impacts of SUD, nor the impact SUD can have on children whose caregivers have a SUD. Further, we do not account for all the public assistance and prevention costs that are associated with SUD. On the cost side, we do not account for the lost utility individuals may face from withdrawing from different substances. Our model focused on the largest, most reliably quantified costs and benefits associated with recovery support services for which data is available, to provide an estimate of the economic costs and benefits.

Second, our estimations are based on a relatively limited sample of data, with only 21 of the 40 total TN-ARR-certified recovery housing organizations providing their economic characteristics. As such, our data and recovery housing organization characteristics may not be truly representative of an average TN-ARR-certified organization. Similarly, our total estimated impact of TN-ARR-certified organizations may be biased due to the unrepresentative nature of our data.

Despite limitations, ensuring that the supply of recovery support services, such as quality recovery residences are available to residents in Tennessee with SUD is imperative to reduce the morbidity and mortality associated with SUD. Recovery housing is a critical resource in responding to health-related social need that may have duplicative impacts if accessed – representing a potential door to accessing other recovery supports. Future work should aim to engage a more representative group of recovery housing operators on the importance of measuring the impacts of the service they provide and its potential associated cost-savings.

REFERENCES

1. Drug Overdose Mortality by State. March 1, 2022. Accessed February 28, 2024. https://www.cdc.gov/nchs/pressroom/sosmap/drug_poisoning_mortality/drug_poisoning.htm
2. Substance Abuse and Mental Health Services Administration. NSDUH State Estimates. Accessed April 24, 2024. <https://datatools.samhsa.gov/saes/state>
3. Recovery Centers of America. *Economic Cost of Substance Abuse Disorder in the United States, 2019*. Recovery Centers of America; 2019. Accessed January 31, 2023. <https://recoverycentersofamerica.com/resource/economic-cost-of-substance-abuse-disorder-in-united-states-2019/>
4. Luo F. State-Level Economic Costs of Opioid Use Disorder and Fatal Opioid Overdose — United States, 2017. *MMWR Morb Mortal Wkly Rep*. 2021;70. doi:10.15585/mmwr.mm7015a1
5. Substance Abuse and Mental Health Services Administration. *Recovery Housing: Best Practices and Suggested Guidelines*. Substance Abuse and Mental Health Services Administration; 2018. <https://www.samhsa.gov/sites/default/files/housing-best-practices-100819.pdf>
6. U.S. Department of Housing and Urban Development (HUD). *Recovery Housing Policy Brief*. 2015;9. <https://files.hudexchange.info/resources/documents/Recovery-Housing-Policy-Brief.pdf>
7. Mericle AA, Slaymaker V, Gliske K, Ngo Q, Subbaraman MS. The role of recovery housing during outpatient substance use treatment. *J Subst Abuse Treat*. 2022;133:108638. doi:10.1016/j.jsat.2021.108638
8. Jason LA, Ferrari JR. Oxford house recovery homes: Characteristics and effectiveness. *Psychological Services*. 2010;7(2):92-102. doi:10.1037/a0017932
9. Polcin DL, Korcha R, Bond J, Galloway G. Eighteen-month outcomes for clients receiving combined outpatient treatment and sober living houses. *Journal of Substance Use*. 2010;15(5):352-366. doi:10.3109/14659890903531279
10. Vilsaint CL, Tansey AG, Hennessy EA, Eddie D, Hoffman LA, Kelly JF. Recovery housing for substance use disorder: a systematic review. *Front Public Health*. 2025;13:1506412. doi:10.3389/fpubh.2025.1506412
11. Mericle AA, Patterson D, Howell J, Subbaraman MS, Faxio A, Karriker-Jaffe KJ. Identifying the availability of recovery housing in the U.S.: The NSTARR project. *Drug and Alcohol Dependence*. 2022;230:109188. doi:10.1016/j.drugalcdep.2021.109188
12. Jason LA, Wiedbusch E, Bobak TJ, Taullahu D. Estimating the Number of Substance Use Disorder Recovery Homes in the United States. *Alcoholism Treatment Quarterly*. 2020;38(4):506-514. doi:10.1080/07347324.2020.1760756

13. Find Your Recovery Home. The Tennessee Alliance. Accessed May 21, 2026.
<https://www.tnarr.org/directory>
14. Fletcher Group. Economic Calculator - Fletcher Group. October 2, 2023. Accessed November 27, 2023. <https://www.fletchergroup.org/2023/10/02/economic-calculator/>,
<https://www.fletchergroup.org/2023/10/02/economic-calculator/>
15. SAMHSA. *2019 National Survey of Drug Use and Health (NSDUH) Releases*. Substance Abuse and Mental Health Services Administration; 2020. Accessed March 24, 2023.
<https://www.samhsa.gov/data/release/2019-national-survey-drug-use-and-health-nsduh-releases>
16. Prisons Report Series: Preliminary Data Release, 2023 | Bureau of Justice Statistics. Accessed January 23, 2025. <https://bjs.ojp.gov/library/publications/prisons-report-series-preliminary-data-release-2023>
17. Ashenfelter O. Measuring the Value of a Statistical Life: Problems and Prospects. *Econ J*. 2006;116(510):C10-C23. doi:10.1111/j.1468-0297.2006.01072.x
18. Salomon JA. Quality Adjusted Life Years. In: Quah SR, ed. *International Encyclopedia of Public Health (Second Edition)*. Academic Press; 2017:224-228. doi:10.1016/B978-0-12-803678-5.00368-4
19. Kelly JF, Greene MC, Bergman BG, White WL, Hoepfner BB. How Many Recovery Attempts Does it Take to Successfully Resolve an Alcohol or Drug Problem? Estimates and Correlates From a National Study of Recovering U.S. Adults. *Alcohol Clin Exp Res*. 2019;43(7):1533-1544. doi:10.1111/acer.14067
20. Kelly JF, Greene MC, Bergman BG. Beyond Abstinence: Changes in Indices of Quality of Life with Time in Recovery in a Nationally Representative Sample of U.S. Adults. *Alcohol Clin Exp Res*. 2018;42(4):770-780. doi:10.1111/acer.13604
21. Find a Residence. ORH. Accessed May 14, 2024.
<https://www.ohiorecoveryhousing.org/find-a-residence>