

FLETCHER GROUP ECONOMIC CALCULATOR

RESULTS REPORT

PREPARED FOR: VERMONT ALLIANCE FOR
RECOVERY RESIDENCES

JANUARY 2025

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*, 1–16. DOI:
[HTTPS://DOI.ORG/10.1017/BCA.2024.26](https://doi.org/10.1017/BCA.2024.26)

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INTRODUCTION

Substance use disorder (SUD) is a pressing issue in the state of Vermont, with the rate of drug overdose deaths increasing from 22 per 100,000 residents in 2016 to over 46 deaths per 100,000 residents in 2021, a 109% increase in 5 years.¹ An estimated 22% of Vermont residents ages 12 and older met the criteria for a drug or alcohol use disorder in 2021, 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 A recent analysis of the economic impact of opioid use disorder in Vermont found that opioid use disorder and associated fatal opioid overdoses cost the state of Vermont \$2.42 billion in 2017.⁴

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.⁷⁻⁹ Although the exact number of recovery residences in the United States (U.S.) is unknown, latest estimates suggest there are approximately 10,000 recovery residences in the U.S.¹⁰ As of November 2024, there were approximately 4 recovery housing organizations operating 14 recovery residences certified by Vermont Alliance of Recovery Residences (VTARR).¹¹

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 VTARR-certified recovery housing organizations using the Fletcher Group Economic Calculator. Specifically, we look at the economic impact of a representative VTARR-certified recovery housing organization as well as the cumulative economic impact of all VTARR-certified organizations.

METHODS

In this report, we provide results from the Fletcher Group Economic Calculator, a customizable cost-benefit analysis tool for recovery support services designed by the RCORP-Rural Center of Excellence on SUD Recovery at the Fletcher Group.¹² The cost-benefit analysis tool includes several benefits and costs associated with recovery support services with a focus on those that

can be reliably quantified and estimated. The tool focuses on benefits associated with reduced healthcare, criminal justice, and productivity costs, as well as benefits associated with reduced morbidity and premature mortality. In terms of costs, the tool focuses on the operating costs and start-up or capital costs of the recovery organization.

Inputs into the model include the organization's annual operating cost, start-up costs, success rate, number of residents annually, and the state and county the organization is located in. Operating costs are defined as the costs associated with operations of the recovery housing organization and do not include other services or support provided by affiliated agencies. Start-up or capital costs are defined as the costs associated with items that maintain some residual value after the organization ceases operation and can include things like land, building, vehicles, or equipment. We defined the success rate of the organization as the percentage of individuals served by the organization each year that enter long-term recovery after accessing the organization's services.

A complication of conducting cost-benefit analyses of recovery support services is modelling of the recovery process itself. SUD recovery is not typically a linear process where a treatment intervention occurs, and a person enters recovery for the rest of their life. SUD is a chronic, relapsing disease and studies report an average of five attempts to achieve long-term recovery.¹³ Further, once long-term recovery is achieved, there may be a delay before the benefits of recovery start accruing. 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 equal to individuals without SUD.¹⁴ As such, we include a discount parameter to model the time-lag of recovery benefits and discuss how results may change as a result of this time lag of benefits. A full description of our methodology may be found here: [Fletcher Group Economic Calculator Methodology](#).¹²

Data to inform this state-level report was collected via a cross-sectional financial landscape survey conducted by the Fletcher Group Rural Center of Excellence and VTARR. Of the 4 study participants, a total of 3 (75%) opted to receive the cost-benefit report, an incentive offered for 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 VTARR-certified recovery housing organization based on the data provided. Second, we calculate the total economic impact of all VTARR-certified recovery housing in the state.

ECONOMIC IMPACTS OF A REPRESENTATIVE RECOVERY HOUSING ORGANIZATION IN VERMONT

In this section, we discuss the economic impacts of a representative VTARR-recovery housing organization in Vermont. 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 3 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 VTARR-CERTIFIED RECOVERY HOUSING ORGANIZATION CHARACTERISTICS

Annual Operating Cost	\$452,000
Start-Up Cost	\$600,000
State	Vermont
Success Rate	35%
Number of Residents Served Annually	28

First, we present the economic impact of a representative VTARR-certified organization across 15 years with no time lag of benefits (Table 2).

TABLE 2. ECONOMIC IMPACT OF A REPRESENTATIVE VTARR-CERTIFIED RECOVERY HOUSING ORGANIZATION OVER 15 YEARS WITH NO TIME LAG OF BENEFITS

Variable	Output
<i>Total Residents Served</i>	420
<i>Total Benefits</i>	\$68,341,852
<i>Total Costs</i>	\$8,377,011
<i>Net Benefits</i>	\$59,964,841
<i>Avoided Criminal Justice Costs</i>	\$2,097,378
<i>Avoided Healthcare Costs</i>	\$3,476,210
<i>Avoided Productivity Costs</i>	\$8,985,555
<i>Reduced Premature Mortality/Morbidity</i>	\$53,782,709
<i>Total Return on Investment</i>	\$7.16

Over the course of 15 years, a representative VTARR-certified organization in Vermont serves approximately 420 residents. The total present value of economic benefits is approximately \$68 million. Of these benefits, approximately 3% are due to avoided criminal justice costs (\$2.1 million), 5% are due to avoided healthcare costs (\$3.5 million), 13% are due to avoided productivity costs (\$9 million), and 79% are due to other benefits in the form of reduced

premature mortality and morbidity (\$54 million). The present value of total costs is approximately \$8.4 million. The present value of the net benefits (i.e., the total benefits minus the total costs) is approximately \$60 million over 15 years. The total return on investment of the organization over the course of 15 years is \$7 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 3. ECONOMIC IMPACT OF A REPRESENTATIVE VTARR-CERTIFIED RECOVERY HOUSING ORGANIZATION OVER 15 YEARS ACROSS DIFFERENT MODELS OF RECOVERY

Variable	No Lag	2-Year Lag	5-Year Lag
<i>Total Benefits</i>	\$68,341,852	\$63,698,422	\$47,095,343
<i>Total Costs</i>	\$8,377,011	\$8,377,011	\$8,377,011
<i>Net Benefits</i>	\$59,964,841	\$55,321,411	\$38,718,332
<i>Avoided Criminal Justice Costs</i>	\$2,097,378	\$1,954,873	\$1,445,333
<i>Avoided Healthcare Costs</i>	\$3,476,210	\$3,240,022	\$2,395,506
<i>Avoided Productivity Costs</i>	\$8,985,555	\$8,375,039	\$6,192,074
<i>Reduced Premature Mortality/Morbidity</i>	\$53,782,709	\$50,128,488	\$37,062,430
<i>Total Return on Investment</i>	\$7.16	\$6.60	\$4.62

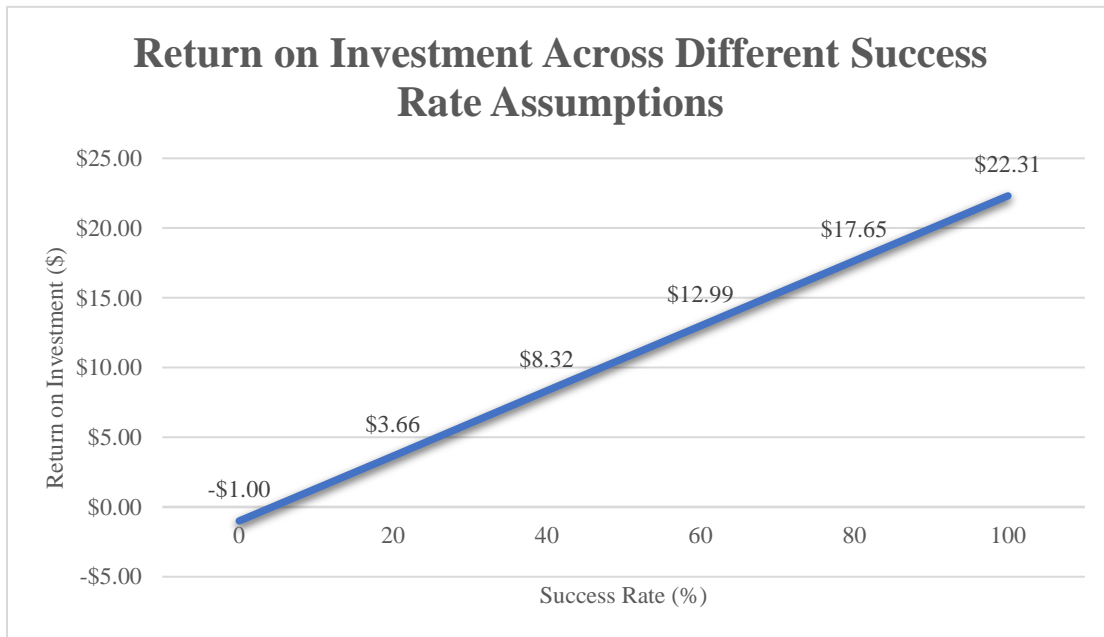
Accounting for the lag in benefits that may be associated with recovery decreases the net benefits of the organization by approximately 7% under the two-year time lag assumption or approximately 32% under the 5-year time lag assumption. However, even under the most conservative modelling of recovery involving a 5-year time lag of benefits, the net benefits of the organization are positive at \$39 million and the return on investment is \$5 per dollar invested.

As the success rate of the organization 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 4). In this analysis, we use the baseline recovery model that does not incorporate any lag in benefits.

TABLE 4. 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	-\$8,377,011	-\$1.00
20	\$30,675,480	\$3.66
40	\$69,727,960	\$8.32
60	\$108,780,400	\$12.99
80	\$147,832,900	\$17.65
100	\$186,885,400	\$22.31

FIGURE 1. RETURN ON INVESTMENT FOR A REPRESENTATIVE RECOVERY HOUSING ORGANIZATION OVER 15 YEARS ACROSS DIFFERENT SUCCESS RATE ASSUMPTIONS



We find that even with an individual organization’s success rate as low as 20%, the present value of net benefits is positive at \$31 million over 15 years. As the success rate of the organization increases, the net benefits increase, with net benefits reaching a maximum of approximately \$187 million over 15 years when the success rate of the organization is 100%.

ECONOMIC IMPACT OF ALL VTARR-CERTIFIED RECOVERY HOUSING ORGANIZATIONS

In this section, we present the total economic impact of all VTARR-certified recovery housing organizations (N = 4).¹¹ Specifically, we use estimates of the operating costs and start-up costs provided by the 3 VTARR-certified organizations and use data from the financial landscape study to estimate the number of individuals served and the operating costs of the 1 VTARR-certified organization that did not provide data. Across all VTARR-certified recovery housing organizations, the total amount spent on operating costs annually is \$3,398,983 and the total amount spent on start-up costs is \$1,459,850. Across all VTARR-certified recovery housing organizations, 250 residents are served annually.

Table 5 provides an overview of the total economic benefits, costs, and return on investment of all VTARR-certified houses across 15 years.

TABLE 5. ECONOMIC IMPACT OF ALL VTARR-CERTIFIED RECOVERY HOUSING ORGANIZATIONS OVER 15 YEARS

<i>Variable</i>	<i>Output</i>
<i>Total Residents Served</i>	3,750
<i>Total Benefits</i>	\$610,195,104
<i>Total Costs</i>	\$62,054,967
<i>Net Benefits</i>	\$548,140,136
<i>Return on Investment</i>	\$8.83

Over the course of 15 years, VTARR-certified recovery housing organizations serve approximately 3,750 residents. The total present value of economic benefits for all organizations is approximately \$610 million. The present value of total costs is approximately \$62 million. The present value of the net benefits (i.e., the total benefits minus the total costs) is approximately \$548 million over 15 years. The total return on investment of the organizations over the course of 15 years is \$9 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 6. ECONOMIC IMPACT OF ALL VTARR-CERTIFIED RECOVERY HOUSING ORGANIZATIONS OVER 15 YEARS ACROSS DIFFERENT MODELS OF RECOVERY

Variable	No Lag	2-Year Lag	5-Year Lag
<i>Total Benefits</i>	\$610,195,104	\$568,735,912	\$420,494,132
<i>Total Costs</i>	\$62,054,967	\$62,054,967	\$62,054,967
<i>Net Benefits</i>	\$548,140,136	\$506,680,944	\$358,439,165
<i>Return on Investment</i>	\$8.83	\$8.17	\$5.78

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 33% 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 \$358 million and the return on investment is \$6 per dollar invested.

CONCLUSION

In this report, we examine the economic costs and benefits associated with VTARR-certified recovery housing organizations including the economic impacts of a representative VTARR-certified organization and the cumulative impact of all VTARR-certified organizations. We find that there are significant economic benefits associated with recovery housing in Vermont, with a representative VTARR-certified recovery housing organization yielding an estimated \$39 million in net economic benefits over the course of 15 years under the most conservative modelling of recovery. Further, we find that all VTARR-certified recovery housing organizations yield approximately \$358 million 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. Our 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 limited sample of data, with only 3 of the 4 total VTARR-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 VTARR-certified organization. Similarly, our total estimated impact of VTARR-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 Vermont 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 June 13, 2023. 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. 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
11. Vermont Recovery Residences. Google My Maps. Accessed November 25, 2024. https://www.google.com/maps/d/viewer?mid=1aT11MOr1-_UWRsdbJ6IDOUF70rua0wYG

12. Ashworth M, Johnson D, Thompson R. Adaptable Tool for Modeling the Benefits and Costs of Substance Use Disorder Recovery Programs. *Journal of Benefit-Cost Analysis*. Published online December 16, 2024;1-16. doi:10.1017/bca.2024.26
13. 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. *Alcoholism: Clinical and Experimental Research*. 2019;43(7):1533-1544. doi:10.1111/acer.14067
14. 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