

# Evaluation of Complementary and Integrative Health (CIH) Services in the Colorado Medicaid Program, 2021 - 2024

*Legislative Report*

January 30, 2025

Submitted to: Colorado General Assembly's Joint Health and Human Services Committees



**COLORADO**  
Department of Health Care  
Policy & Financing

# Table of Contents

- Table of Contents ..... 2
- Executive Summary ..... 3
  - What Are The Patterns Of CIHS Use? ..... 3
  - Are CIHS Associated With Lower Health Care Costs?..... 4
  - How Do Participants Perceive The Benefits Of CIHS? ..... 4
  - Final Recommendation ..... 4
- Introduction ..... 5
- Methodology and Analysis..... 6
  - Table 2: Research Question by Data Source..... 6
  - Assessing CIHS Cost Savings ..... 7
    - Data Sources ..... 7
    - Creation of Intervention and Comparison Groups ..... 8
    - Medicaid Cost and Utilization Analysis ..... 8
  - Assessing Waiver Member Well-being ..... 9
    - Surveys ..... 9
    - Interviews ..... 9
- Findings ..... 9
  - What Are the Patterns of CIHS Use? ..... 9
  - Are CIHS Associated with Lower Health Care Costs? ..... 10
  - How Do Participants Perceive the Benefits of CIHS? ..... 11
    - Improvements to Physical and Mental Well-being ..... 11
    - Use of Other Health Care Services ..... 12
    - Member Feedback on CIHS Providers ..... 13
- Recommendations ..... 15
- Conclusion ..... 16
- Appendix A: Tables and Figures..... 17



Table 1: CIHS Utilization 2013-2023, 2023 Dollars .....	17
Table 2: Research Question by Data Source.....	17
Table 3: Percent of CIH Waiver Members within each CIHS Utilization Category....	17
Figure 1: Average Quarterly Total Medicaid and CIHS Costs, 2013-2023 .....	18
Figure 2: Average Quarterly Units of CIHS, 2013-2023 .....	18
Figure 3: Total Medicaid Costs Between CIH Intervention and EBD Comparison Groups, 2013-2023 .....	19
Figure 4: Percent of Survey Respondents that Reported that CIHS Significantly or Moderately Improved Aspects of their Well-being .....	19
Figure 5: Percent of Survey Respondents that Reported that CIHS Significantly or Moderately Decreased their use of Other Health Care Services .....	20

## Executive Summary

Colorado’s Medicaid program, which is administered by the Department of Health Care Policy and Financing (HCPF), is one of the few in the nation that covers Complementary and Integrative Health Services (CIHS) for individuals receiving home and community-based services (HCBS). CIHS includes massage, acupuncture, and chiropractic services for people with mobility issues, such as paraplegia and quadriplegia, enrolled in the Complementary and Integrative Health (CIH) waiver<sup>1</sup>. CIHS aim to improve member well-being and generate cost savings for the state through reductions in other health care expenditures. Mission Analytics Group, Inc. (Mission) was contracted by HCPF in 2020 to evaluate the impact of CIHS on Medicaid costs and waiver participants’ health and well-being.

### What Are The Patterns Of CIHS Use?

From 2013 through 2023, 252 out of 402 CIH waiver members accessed CIHS (Table 1). Massage was utilized by all but four of these individuals, followed by 203 individuals who accessed acupuncture services and 195 who accessed chiropractic services. Over

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<sup>1</sup> The CIH waiver was launched in July 2022 as an expansion of the Spinal Cord Injury (SCI) waiver as part of SB21-138. This evaluation includes CIHS provided under the SCI waiver and the CIH waiver. Waiver members are referred to as CIH waiver members even if they originally enrolled in and received services under the SCI waiver or Complementary and Alternative Medicine Pilot that began in 2012.

the 10-year period, the average quarterly cost of CIHS users was \$700 per member. CIHS costs represented just 3 percent of overall Medicaid spending for CIH waiver members, which ranged from \$20,000-\$25,000 per quarter. CIHS utilization increased substantially from 2016 - 2018. The COVID-19 pandemic led to a sharp drop, but utilization has since stabilized.

### **Are CIHS Associated With Lower Health Care Costs?**

Mission conducted a statistical analysis to compare the Medicaid costs of a sample of individuals with CIHS to the costs of individuals enrolled in the Elderly, Blind, and Disabled (EBD) waiver who had similar health conditions. Costs were compared across four quarters prior to the first CIHS date of service and for 24 quarters after receipt of the first service. Although not statistically significant, results suggest that the \$700 spent on CIHS might equate to about a \$1,000 savings in total Medicaid costs, or a net savings of \$300 per CIH waiver member per quarter (Figure 3).

### **How Do Participants Perceive The Benefits Of CIHS?**

CIH waiver members overwhelmingly reported in surveys and interviews that CIHS improved multiple areas of their lives, including physical and mental well-being. They welcomed the interconnected benefits of reduced pain, better sleep, more energy, stronger mental health, and less reliance on other health care services. Members also appreciated receiving services from providers that offer all three service types, as these providers have experience treating complex conditions and foster a community space for people with similar mobility issues. Over 80 percent of survey respondents reported that CIHS significantly or moderately improved their pain.

### **Final Recommendation**

Mission recommends that HCPF continue to offer CIHS through the CIH waiver:

- Members find that CIHS are beneficial in multiple interconnected ways: pain reduction, improved mobility, better sleep and energy, stronger mental health, and the need for fewer health care services.
- CIHS providers offer co-located services and a welcoming community to individuals who face considerable health challenges and mobility issues.

- CIHS costs represent a small share of overall waiver and Medicaid costs for CIH enrolled members. On average, CIH waiver members used \$700 of CIHS per quarter, compared to approximately \$15,000 per quarter of waiver services and \$5,000 per quarter of Medicaid state plan services.
- A cost analysis, while not statistically significant, points to net cost savings of over \$300 per quarter per CIH member. The small size of the CIHS user population limits the statistical power to determine whether there was an impact on costs. Nevertheless, the results of the analysis indicate a pattern where the cost difference between CIHS users and the EBD comparison group disappears following access to CIHS.

## Introduction

Colorado’s Medicaid program, which is administered by the Department of Health Care Policy and Financing (HCPF), is one of the few in the nation that covers Complementary and Integrative Health Services (CIHS) for individuals receiving home and community-based services (HCBS). CIHS include massage, acupuncture, and chiropractic services for people with mobility issues enrolled in the Complementary and Integrative Health (CIH) waiver. The CIH waiver was established in July 2022 as an expansion of the 2012 Spinal Cord Injury (SCI) waiver.<sup>2</sup> Throughout this report, waiver members are referred to as CIH waiver members even if they originally enrolled in the SCI waiver.

CIHS aim to improve the well-being of individuals who experience mobility issues, often coupled with chronic pain, and generate cost savings for the state through reductions in other health care expenditures. Mission Analytics Group, Inc. (Mission) was contracted by HCPF in 2020 to evaluate the impact of CIHS on Medicaid costs and waiver members’ health and well-being. Mission analyzed Medicaid claims and waiver member survey and interview data to answer the following research questions:

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<sup>2</sup> The CIH waiver expanded the SCI waiver in three ways. It is available statewide, as opposed to just the Denver Metro Area. Individuals with conditions that affect mobility other than spinal cord injuries are also now eligible. Finally, the CIH waiver removed restrictions related to daily service limits.

1. **What are the patterns of CIHS use?** Mission analyzed total Medicaid costs, costs of waiver services, and costs and units of each type of CIHS (massage, acupuncture, and chiropractic services) of CIH waiver members from 2013-2023.
2. **Are CIHS associated with lower health care costs?** Mission conducted a difference-in-difference (DID) analysis to compare the Medicaid costs of individuals with CIHS to the costs of individuals enrolled in the Elderly, Blind, and Disabled (EBD) waiver who had similar health conditions.
3. **How do participants perceive the benefits of CIHS?** Mission conducted surveys and interviews with CIH waiver members on an annual basis between 2021 and 2024.

This report presents findings by research question and concludes with recommendations for the continued availability of CIHS under the CIH waiver.

## Methodology and Analysis

The evaluation answers three research questions through Medicaid administrative data, survey data, and interview data (Table 2). These sources and related analytical methods are described below.

**Table 2: Research Question by Data Source**

Research Question	Medicaid Data	Surveys	Interviews
What are the patterns of CIHS use?	✓		
Are CIHS associated with lower health care costs?	✓		
How do participants perceive the benefits of CIHS?		✓	✓



## Assessing CIHS Cost Savings

Mission used a Difference in Difference (DID) method that compared cost outcomes for an intervention group and a comparison group before and after starting CIHS to evaluate the impact of CIHS on Medicaid costs.

### *Data Sources*

The DID method relied on Medicaid claims and assessment data, which included information from waiver intake forms that are completed upon waiver enrollment. The Medicaid claims data spanned from July 2012 through September 2023 and consisted of quarterly costs by service category for CIH and EBD waiver members. Individuals on the EBD waiver served as the comparison group for individuals on the CIH waiver because they can have similar health conditions or diagnoses, but do not use CIHS under the CIH waiver. The assessment data included diagnoses, gender, and birth year for all individuals.

## *Creation of Intervention and Comparison Groups*

The intervention group for the CIH waiver consisted of individuals with CIHS usage in their Medicaid claims. Each individual in the intervention group was matched to an individual in the comparison group based on:

- *Health condition:* Mission matched EBD waiver members on spinal cord injury diagnoses or diagnoses for quadriplegia or paraplegia on the intake forms.
- *Dual eligibility status (both Medicare and Medicaid):* Since Medicare pays for some health care services and Medicaid is the payer of last resort for people dually enrolled in Medicare and Medicaid, Mission matched CIH waiver members with EBD waiver members on insurance status for cost comparability.
- *Existence of inpatient claims in the quarter prior to the intervention:* Inpatient claims explain much of the variability of costs. Therefore, Mission matched on the presence of these types of claims in quarters prior to the intervention, which helped ensure that pre-intervention trends were similar for both the intervention and comparison groups.
- *CIHS start dates:* Because CIHS start dates for the intervention group range over several years, Mission assigned each individual in the comparison group the same intervention period as the matched individual in the intervention group. Thus, the individuals in the matched pair were subject to the same time-varying effects.

The intervention and comparison groups were also restricted to individuals with four sequential quarters of claims data to establish a pre-intervention trend and 24 sequential quarters (six years) following the first intervention quarter to establish a post-intervention trend. Mission identified 43 individuals in the CIH waiver intervention group and matched them to 73 EBD waiver members with similar characteristics.

## *Medicaid Cost and Utilization Analysis*

For the intervention and comparison groups, Mission compared Medicaid costs overall and Medicaid costs for each of the following service categories: waiver, primary care,



pharmacy, outpatient, inpatient, emergency department, emergency medical, and skilled home health.

## **Assessing Waiver Member Well-being**

### *Surveys*

CIH waiver members completed surveys each year from 2021 to 2024 to provide information on their health and well-being, their perceptions of service impact, and their experience with enrolling in the waiver and accessing services. Each respondent was assigned an identifier that could be linked back to Medicaid administrative data. Individuals completed the survey on paper, online, or over the phone. Respondents received a \$25 gift card for completing the survey.

### *Interviews*

Mission interviewed CIH waiver members from 2021 to 2024 about their experience enrolling in the waiver, the provision of services to the CIH waiver population, their perception of service impact, and suggestions for improvement. In 2024, Mission interviewed several CIHS providers and HCPF staff. Interviews were conducted virtually, recorded with interviewees' consent, and transcribed. Mission staff then coded data using qualitative software and grouped findings to present information on perceptions of service benefits, issues with service and waiver access, use and provision of CIHS, and opportunities for improvement.

## **Findings**

### **What Are the Patterns of CIHS Use?**

From 2013 through 2023, 252 out of 402 CIH waiver members accessed CIHS (Table 1). Massage was utilized by all but four of these individuals, followed by 203 individuals who accessed acupuncture services and 195 who accessed chiropractic services.

CIHS costs represent a small share of total Medicaid costs for CIH waiver members (Figure 1). On average, over the 10-year period, a CIHS user used \$700 of CIHS per

quarter, compared to approximately \$20,000 in Medicaid costs per quarter for CIH members.

There was substantial variation in quarterly CIHS utilization over the ten-year period (Figure 2). Average quarterly massage utilization nearly doubled between 2016 and 2018, and average utilization for acupuncture services increased by about 50 percent over the same period. Although the COVID-19 pandemic led to a sharp drop in use at the beginning of 2020, it had already been declining prior to 2020. Since 2021, average utilization has largely remained stable (Table 3).

During the first four years of the CIH waiver (2013-2016), CIH waiver members most commonly accessed between 30-80 units a quarter (38%). However, on average, 37 percent of CIH waiver members showed no utilization within a given quarter. These individuals typically accessed services but stopped. From 2017 through 2019, newly enrolled CIH waiver members were more likely to access services, dropping the average percent of quarterly non-users to 20 percent. During this same period, nearly half of CIH waiver members accessed between 30-80 units of CIHS a quarter. Following 2021, the patterns of utilization reverted back to the pattern observed from 2013 through 2016, where about a third of CIH waiver members did not access services in any given quarter.

### **Are CIHS Associated with Lower Health Care Costs?**

Prior to starting CIHS, CIH waiver members had average quarterly costs that were more than \$1,000 higher than comparable EBD waiver members. After about a year of CIHS, costs were essentially equal between the groups (Figure 3). Although not statistically significant, these results suggest that the \$700 spent on CIH services equates to about a \$1,000 savings in total Medicaid costs, or a net savings of \$300 per CIH member per quarter. Given the small number of CIHS users and the highly variable cost and utilization patterns for this group, identifying a statistically significant impact on Medicaid costs may not be feasible. However, comparing cost trends between CIHS users and comparable EBD waiver members suggests that costs of CIHS users stabilize while costs rise for similar Medicaid EBD waiver members.

## How Do Participants Perceive the Benefits of CIHS?

CIH waiver members overwhelmingly reported in surveys and interviews that CIHS improved multiple areas of their lives, including physical and mental well-being. They welcomed the interconnected benefits of reduced pain, better sleep, more energy, stronger mental health, and less reliance on other health care services. Members also appreciated receiving services from providers that offer all three service types, as these providers have experience treating these complex conditions and foster a community space for people with similar mobility issues.

### Member Experience

One member with a degenerative illness that gradually decreased mobility joined the CIH waiver after the eligible medical conditions were broadened to include non-spinal cord injuries. The member noted that they experienced less discomfort, better mobility, and more restful sleep due to CIHS. “My ability to sleep is improved, but that affects everything else in my life, whether it’s work or being a parent or being a husband.”

### *Improvements to Physical and Mental Well-being*

Each year, survey and interview participants reported that **pain reduction** was the greatest benefit of CIHS. Over the course of the four-year evaluation period, the percent of survey respondents who indicated that their use of CIHS either significantly or moderately improved their levels of pain ranged from 84 to 89 percent (Figure 4).

As explored in a later section, some members even indicated that CIHS helped them decrease their use of pain medications, with one member saying they had “definitely cut back on Tylenol or oxycodone,” because of the pain alleviated by CIHS. This reduction in pain reportedly **increased overall mobility**. One member said, “All my services combined complement each other, and I think that they have kept me more mobile, more pain-free, flexible, and my circulatory system has improved.”

CIHS also reportedly lead to improvements in **mental health**. Each year from 2021 to 2024, over 60 percent of CIHS survey respondents indicated that negative thoughts/feelings were significantly or moderately reduced by CIHS. This reached a

peak of 80 percent of survey respondents in both 2023 and 2024. Members said the services helped “with mental well-being,” put them in a “better mood,” and reduced their anxiety. Many stated that the benefits stemmed not just from the services themselves, but also from the interactions with the providers. Members reported looking forward to engaging with provider staff given they often had difficulty leaving their homes and felt deprived of human contact.

Many members also indicated that CIHS improved their **sleep and energy levels**. One member said that after using CIHS, “you often fall asleep, and you get really deep restful sleep,” and another noted that CIHS helped them reduce the need for sleeping medications. The services themselves and better sleep translated to more energy; one member noted “I am not as tired throughout the day.” Members that worked and/or volunteered appreciated greater energy at their place of work. About half of survey respondents indicated that CIHS significantly or moderately improved their ability to work or volunteer. In fact, over the last 12 years, 59 CIH waiver members moved to the Working Adults With Disabilities (WAWD) program, which allows individuals who earn too much to qualify for Medicaid to “buy-into” the program by paying a premium based on their income. WAWD promotes financial independence through employment while allowing CIH waiver members to continue receiving essential services.

### *Use of Other Health Care Services*

Although there was not a statistically significant cost reduction found in the service utilization analysis of Medicaid claims, self-reported data from waiver members indicated that the use of CIHS helped reduce the use of other health care services and medications. Each year, at least 55 percent of respondents indicated that their use of CIHS either decreased or significantly decreased the **number of visits** they had to their **conventional doctor’s office** (Figure 5). In 2021, 63 percent of respondents said their use of CIHS decreased their visits to their doctor, compared to 67 percent of respondents in 2024.

Many members said CIHS reduced the amount of pain they experienced and as a result, some indicated they needed fewer **prescription medications**. One member said they had been “pain medication free for three years” because of CIHS. Another member said they can “skip one or two pills” when they are able to see their CIHS provider.

**Hospital admissions and emergency department visits** are costly and a sign of a serious health condition. Approximately half of members indicated that CIHS significantly or moderately decreased hospital or emergency department visits given the preventive attributes of the services.

### *Member Feedback on CIHS Providers*

CIH waiver members reported appreciating the support of CIHS providers, which may offer acupuncture, massage, and chiropractic services at the same location, while also providing assistance with waiver enrollment and community connections.

**Expertise in complex conditions:** Two long-standing CIHS providers have been in operation in the Denver Metro Area for over a decade. Both providers specialize in spinal cord injuries and other conditions affecting mobility. Thus, they have built custom facilities designed specifically for treating this unique population. One member expressed they have confidence in these providers, “I’m always a little bit leery with somebody that doesn’t understand how my body is a little bit different. And so, I don’t want to just see any massage therapist or any chiropractor for that reason.”

**Co-located services:** CIH waiver members also indicated that having all services co-located in one building helped mitigate one of the largest barriers to members’ ability to access services, transportation. One member discussed the ease of being able to “go down there one day” to receive multiple services and that “it’s really incredibly convenient the way they have it set up.” Another member said, “Finding the [CIHS provider], a program that offers all the services in an integrated fashion under one roof, is the main thing that enabled me to take advantage of this benefit.”

**Support with waiver enrollment:** CIHS providers were also reportedly knowledgeable about the waiver and often assisted members with their enrollment process. One member noted, “I think that without the center, I would be lost in terms of what to do or who to go to.” Some members indicated they had already been receiving services from the CIHS provider but paying out of pocket before they were informed of the waiver.

**Community connection:** Members also enjoyed the community atmosphere and sense of belonging they felt at these providers. They offer a space for social interaction

with peers experiencing similar health and mobility issues along with funding workshops and connection to the community resources.



## Member Experience

One individual reported spending years in isolation after suffering an injury that resulted in quadriplegia. The individual was devastated by the loss of mobility and ashamed of the need for additional support and accommodation. The CIHS provider offered a space that allowed this individual to not only receive CIHS in a single location but also connect with a community that provided support and social interaction. This ultimately led to the individual re-engaging with society after years of self-imposed isolation.

## Recommendations

Mission recommends that HCPF continue to offer CIHS through the CIH waiver for the following reasons:

- Members find that CIHS are beneficial in multiple interconnected ways: pain reduction, improved mobility, better sleep and energy, stronger mental health, and the need for fewer health care services. Although not all members enrolled in the CIH waiver consistently use CIHS, the individuals who do expressed that the services relieved the pain and tension associated with their injuries and use of wheelchairs.
- CIHS providers offer co-located services and a welcoming community to individuals who face considerable health challenges and mobility issues, such as paraplegia and quadriplegia.
- CIHS costs represent a small share of overall Medicaid costs for CIH enrolled members. On average, a CIH member uses \$700 of CIHS per quarter, compared to approximately \$20,000 of quarterly Medicaid services overall.
- A cost analysis, while not statistically significant, points to net cost savings of over \$300 per quarter per CIH member. The small size of the CIHS user population limits the statistical power to determine whether there was an impact on costs. Nevertheless, the results of the analysis indicate a pattern where the cost difference between CIHS users and the EBD comparison group disappears following access to CIHS.

## Conclusion

Members find that CIHS reduce pain and the need for other health care services while improving mobility, sleep, energy, and mental health. Members also value CIHS providers that offer co-located services and a community atmosphere to individuals who face considerable health challenges and mobility issues. In addition to the member-endorsed benefits of CIHS, CIHS costs represent a small share of overall Medicaid costs. On average, a CIH member uses \$700 of CIHS per quarter, compared to approximately \$20,000 in quarterly Medicaid services overall. A cost analysis, while not statistically significant, points to net cost savings of CIHS of over \$300 per quarter per CIH member. Given these benefits, the legislature should consider making the CIH waiver pilot program permanent.





## Appendix A: Tables and Figures

**Table 1: CIHS Utilization 2013-2023, 2023 Dollars**

Service	Participants with Any Service	Average Quarterly Units	Mean Quarterly Costs	Median Quarterly Costs	Standard Deviation Quarterly Costs
All CIHS	252	35	\$701	\$646	\$492
Massage	248	20	\$360	\$329	\$246
Acupuncture	203	13	\$272	\$207	\$231
Chiropractic	195	6	\$158	\$95	\$183

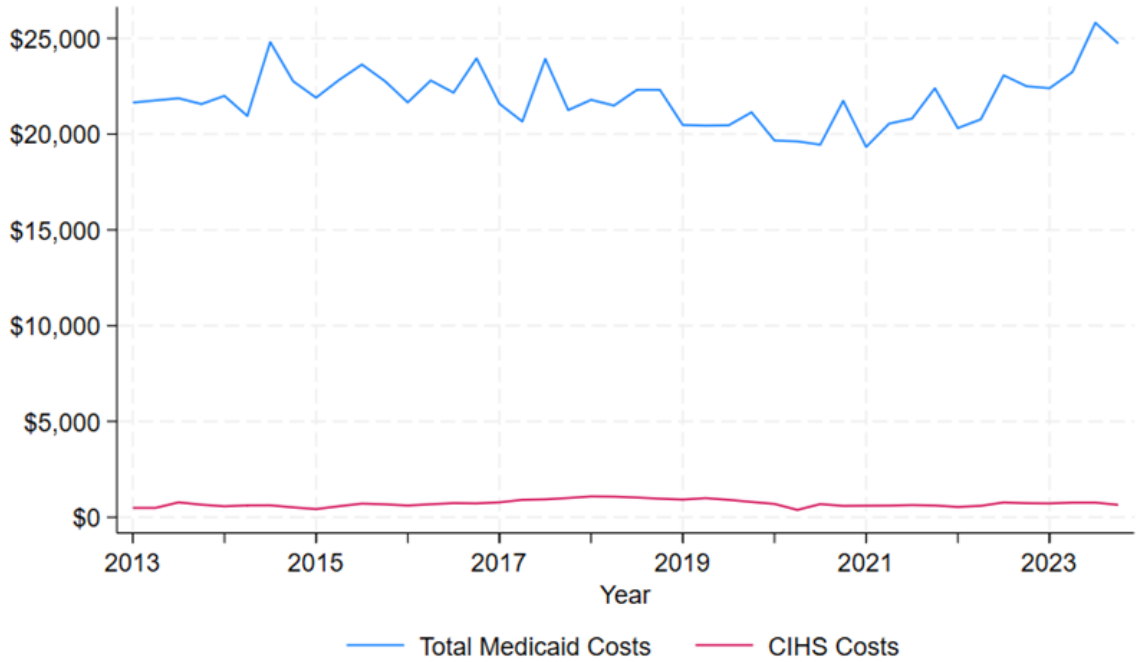
**Table 2: Research Question by Data Source**

Research Question	Medicaid Data	Surveys	Interviews
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Are CIHS associated with lower health care costs?	✓		
How do participants perceive the benefits of CIHS?		✓	✓

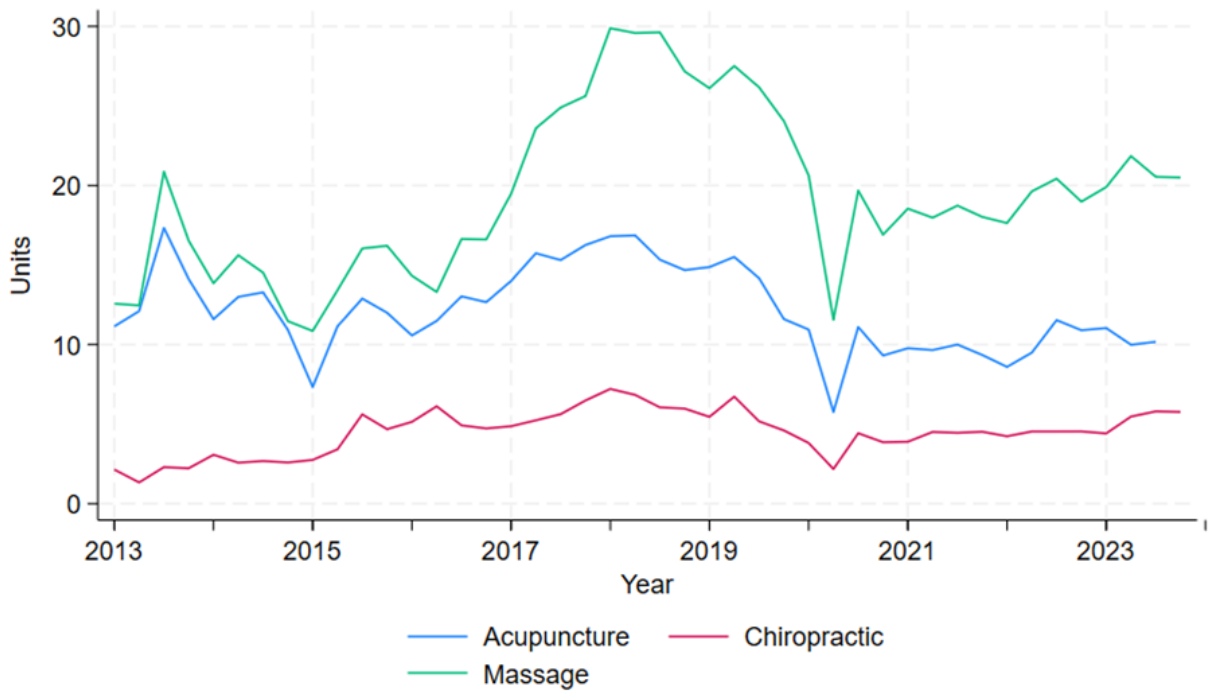
**Table 3: Percent of CIH Waiver Members within each CIHS Utilization Category**

CIHS Utilization Category	2013 - 2016	2017-2019	2020 - 2023
No Utilization in a Quarter	37%	20%	35%
1-30 Units a Quarter	21%	12%	17%
30-80 Units a Quarter	38%	47%	38%
Over 80 Units a Quarter	7%	20%	9%

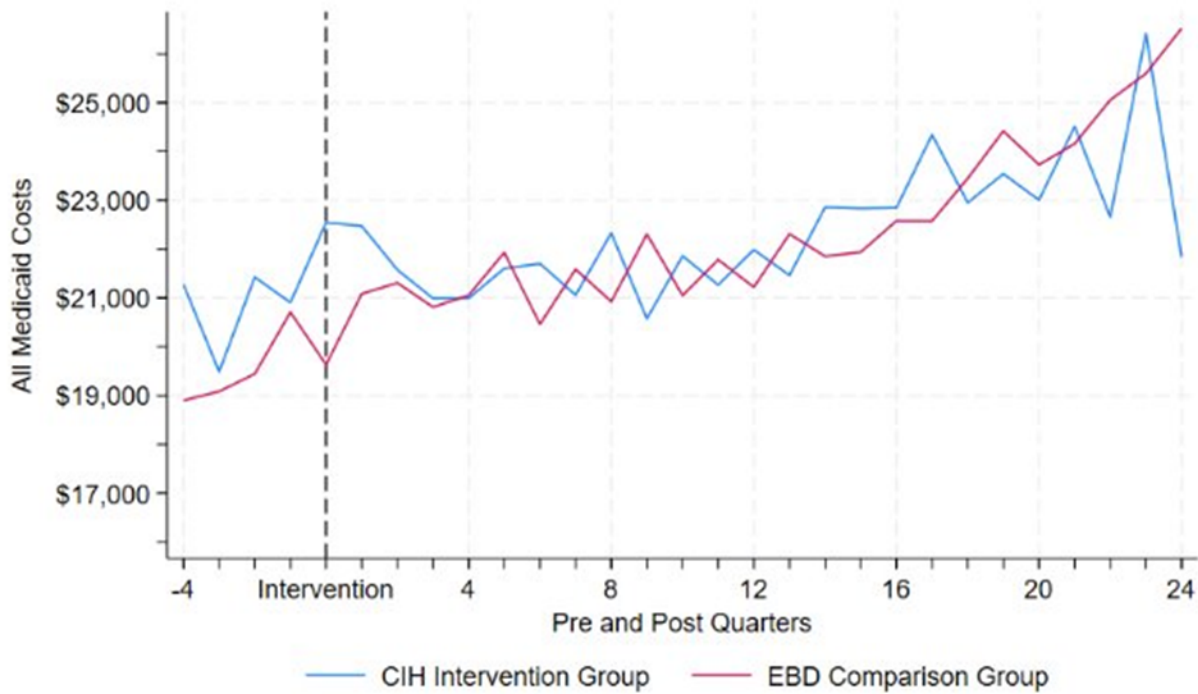
**Figure 1: Average Quarterly Total Medicaid and CIHS Costs, 2013-2023**



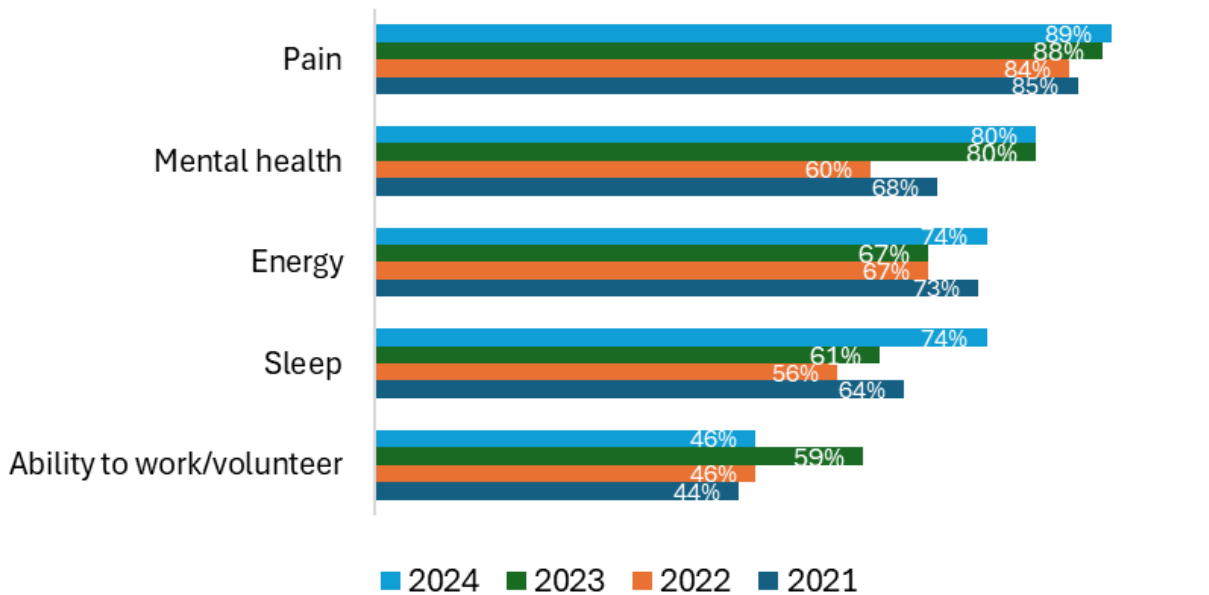
**Figure 2: Average Quarterly Units of CIHS, 2013-2023**



**Figure 3: Total Medicaid Costs Between CIH Intervention and EBD Comparison Groups, 2013-2023**



**Figure 4: Percent of Survey Respondents that Reported that CIHS Significantly or Moderately Improved Aspects of their Well-being**



**Figure 5: Percent of Survey Respondents that Reported that CIHS Significantly or Moderately Decreased their use of Other Health Care Services**

