# DENVER HOUSING FIRST COLLABORATIVE

# COST BENEFIT ANALYSIS AND PROGRAM OUTCOMES REPORT

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**Colorado Coalition for the Homeless**

**December 11, 2006**

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## EXECUTIVE SUMMARY

The **Colorado Coalition for the Homeless** created the Denver Housing First Collaborative (DHFC) in 2003 with funding provided by a collaboration of federal agencies. The DHFC involved CCH as the lead agency, **Denver Department of Human Services** (DDHS), D**enver Health** (DHHA), **Arapahoe House**, the Mental Health Center of Denver (MHCD) and the Denver VA Medical Center.

The DHFC is designed to provide comprehensive housing and supportive services to chronically homeless individuals with disabilities. Initial federal funding created the capacity to house and serve 100 chronically homeless individuals. The program uses a housing first strategy combined with assertive community treatment (ACT) services, providing integrated health, mental health, substance treatment and support services.

The housing first approach has been incorporated as a priority strategy into **Denver's Road Home** – Denver's Ten Year Plan to End Homelessness. Denver's Road Home has provided funding to create a second housing first team at CCH – the 16th Street Housing First Program – to serve an additional 50 chronically homeless individuals.

The goals of the DHFC are to increase the residential stability and overall health status of chronically homeless individuals while reducing the utilization and costs of emergency services being provided to chronically homeless persons with taxpayer funds.

The Cost Benefit Analysis focused on examining the actual health and emergency service records of a sample of participants of the DHFC for the 24 month period prior to entering the program and the 24 month period after entering the program. Participants provided releases of information for their medical, psychiatric, legal and substance treatment records and associated costs for the four year period. Cost data from the clinical records were analyzed to determine the emergency room, inpatient medical or psychiatric, outpatient medical, Detox services, incarceration, and shelter costs and utilization.

The findings document an overall reduction in emergency services costs for the sample group. The total emergency related costs for the sample group declined by 72.95 percent, or nearly $600,000 in the 24 months of participation in the DHFC program compared with the 24 months prior to entry in the program. The total emergency cost savings averaged $31,545 per participant.

Utilization of emergency room care, inpatient medical and psychiatric care, detox services, incarceration, and emergency shelter were significantly reduced by participation in the program. Only outpatient health costs increased, as participants were directed to more appropriate and cost effective services by the program.

Emergency room visits and costs were reduced by an average of 34.3 percent. Inpatient visits were reduced by 40 percent, while inpatient nights were reduced by 80 percent. Overall inpatient costs were reduced by 66 percent.

Detox visits were dramatically reduced by 82 percent, with a average cost savings of $8,732 per person, or 84 percent.

Incarceration days and costs were reduced by 76 percent, and emergency shelter costs were reduced by an average of $13,600 per person.

If the average cost savings of $31,545 per persons are projected for the 150 chronically homeless individuals currently participating in CCH's two housing first programs, the total savings would amount to $4.7 million. If these average costs savings are projected each of the 513 chronically homeless persons estimated in Denver who are eligible for the DHFC program, the savings would amount to $16.1 million.

When the investment costs of providing comprehensive supportive housing and services through the Housing First Program are factored in, there is a net cost savings of $4,745 per person. Thus, the total net cost savings for the current in the Denver housing first programs are projected to be $711,734. The projected net cost savings for all 513 chronically homeless persons, if provided access housing first programs, would be $2,424,131.

In addition to saving taxpayers money, the local and national evaluations of the DHFC program document overall improvement in the health status and residential stability of program participants. For these persons, who averaged nearly 8 years of homelessness each prior to entering the program, 77 percent of those entering the program continue to be housed in the program. More than 80 percent have maintained their housing for 6 months.

Fifty percent of participants have documented improvements in their health status, 43% have improved mental health status, 15% have decreased their substance use, and 64% have improved their overall quality of life.

In addition, the majority of participants have been assisted to obtain the public benefits for which they are eligible, or to obtain employment. The average monthly income of participants increased from $185 at entry to $431.

After two years of operation, Denver Housing First Collaborative approach offers tremendous promise of improving the health status of chronically homeless individuals while reducing taxpayer funded emergency costs of emergency room care, hospitalizations, incarceration and detox.

Furthermore, the overall quality of life for the community can be significantly improved as the negative impacts of individuals living and sleeping on the streets are reduced.

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## I. BACKGROUND:

The Denver Housing First Collaborative (DHFC) is a collaboration between the **Colorado Coalition for the Homeless** (CCH), **Denver Department of Human Services** (DDHS), De**nver Health** (DHHA), **Arapahoe House**, the **Mental Health Center of Denver** (MHCD) and the **Denver VA Medical Center**. Together the collaborative combines a Housing First approach with an Assertive Community Treatment (ACT) team of multi-disciplinary and multi-agency providers to assist chronically homeless individuals with disabilities to obtain permanent housing, support services and eligible benefits to help them gain the stability needed to end their homelessness.

The DHFC was one of eleven programs funded nationally in 2003 through the Ending Chronic Homeless Initiative program, a collaborative grant from the Health Resource Service Administration (HRSA), Housing and Urban Development (HUD), the Substance Abuse Mental Health Service Administration (SAMSHA) and the Department of Veterans Affairs (VA). The goal of the national initiative was to provide permanent housing and supportive services to persons experiencing chronic homelessness in order to transition them out of homelessness and connect them with mainstream services.

The Collaborative was initially funded for three years to provide integrated housing and services for 100 chronically homeless individuals. In 2005, the City and County of Denver, through **Denver's Road Home**, funded an second housing first ACT team to provide housing and treatment services to an additional 50 chronically homeless individuals.

## II. PROGRAM ELEMENTS:

The **Housing First approach** is designed to respond to the most acute need of chronically homeless individuals with disabilities – **housing** – and through the provision of housing, to respond to the other services the participant may need to maintain that housing and to improve their level of health and functioning. For those participants for whom treatment is not a present priority, the Housing First approach allows them to access needed housing immediately. Likewise, for those who have had negative experiences with the treatment system, the provision of housing helps to build trust, lessen the negative impact of homelessness on the underlying disabilities, and ultimately lead to more positive treatment outcomes. For those persons who are ready to access treatment as part of a permanent housing strategy, the project assists them to obtain the treatment they need, holding their housing for them during this process. For those who choose to engage in residential treatment prior to obtaining permanent housing, we ensure that a housing unit is available to them at the end of treatment.

Housing is provided through a combination of project based and tenant based rental assistance. Approximately 35% of the participants are housed in a supportive housing development, such as

the Renaissance at Civic Center Apartments. The remaining participants live in scattered site apartments owned by private landlords. Tenants pay 30% of their income for rent, and the program pays the balance directly to the landlord.

The **Assertive Community Treatment** (ACT) model uses an intensive case management team that has the capacity to provide integrated support services including: health care, mental health care, substance treatment, psychiatric evaluation, medication management, benefits acquisition and supported employment and education opportunities. A major component of the ACT team is to deliver services to the consumer in the community as opposed to requiring them to come into an office. Serving people within their own environment helps to decrease fear and improve the therapeutic alliance which results in increased acceptance of treatment. Therapy is also provided in a non-traditional manner.

## III. DHFC PARTICIPANT STATUS:

The DHF program began accepting referrals in January, 2004. By the end of 2004, there had been 739 referrals. Of these 171 reported having both a substance use and mental health disability. 160 reported a substance use, mental health and physical disability. 102 reported only a substance use disability and 47 reported only a mental health disability. Another 58 reported only a physical disability. The vast majority of individuals indicated at least two and often three disabling conditions.

The DHFC prioritized those individuals who had multiple disabilities and those for whom other programs or services were not effective. Program participants enrolled in the program had an average of 8 years of homelessness each prior to entering the program.

Over the first two years, the program enrolled 137 participants, and provided housing to 133 participants. Thirty persons have been discharged from the program for a variety of reasons. There are currently 107 active participants. 100 of these participants are currently housed. There are an additional 50 enrolled and housed in the 16$^{th}$ Street Housing First Program.

## IV. COSTS BENEFITS METHODOLOGY

All Denver Housing First Collaborative participants who had been enrolled in the program for twenty-four or more months were eligible for inclusion in the cost study. A total of 36 people met the criteria at the time the cost study was conducted. Nineteen (19) people initially signed informed consents to participate in the study and completed the necessary releases of information for dissemination to area medical, psychiatric and substance treatment facilities. This report is based on this sample of 19.

The project utilized two methods of data collection. First participants were asked to have their medical, psychiatric, legal and substance treatment records and associated costs released for a four year period (the two years pre-enrollment in the DHFC program and the first two years following program enrollment). The second data collection method involved an interview with each participant, asking them to recall their service use over the same four year period. In addition participants were asked to answer several open ended questions about their thoughts and feelings regarding the DHFC and its impact on their lives.

During the months of October and November 2006 releases of information were sent out to local hospitals, treatment facilities and all local jails and state prisons requesting records and associated costs for the 19 participants. Within three weeks all records were received and data was entered into a spreadsheet. The spreadsheet was divided into two time frames, the two years prior to entering the DHFC and the first two years following enrollment in the program. Cost data from the clinical records were entered into the database, yielding costs associated with the seven service types under investigation. The services being observed included the following: Emergency room, inpatient medical or psychiatric, outpatient medical, Detox services, incarceration, and shelter utilization.

Once all the data was analyzed an average cost per person over the two distinct two year periods for each of the identified services was calculated. The product yielded pre-entry treatment utilization and cost figures, as well as post-entry treatment utilization and cost. Total costs and change-in-costs were calculated for the 19 participants for both pre-entry and post-entry periods.

## V. COSTS BENEFITS RESULTS

### A. Health Related Costs:

The sample cohort utilized **emergency room services** a total of 67 times in the period prior to entry in the DHFC program. This same cohort utilized emergency room services 44 times in the period after entry in the program. Thus, emergency room visits declined by 34.3% after entry in the DHFC program. The associated costs of emergency room care for this group declined from $99,860 to $65,579, a reduction of $34,280 or 34%.

The sample cohort utilized **outpatient medical services** a total of 91 times in the period prior to entry in the DHFC program. They utilized outpatient medical services 92 times in the period after entry in the program. Outpatient visits increased slightly by 1.1% after entry in the DHFC program. The associated costs of outpatient medical services for this group increased from $33,199 to $50,184, an increase of $16,984 or 51%. This increase was expected as DHFC clients were directed to more appropriate outpatient care rather than more expensive emergency room care.

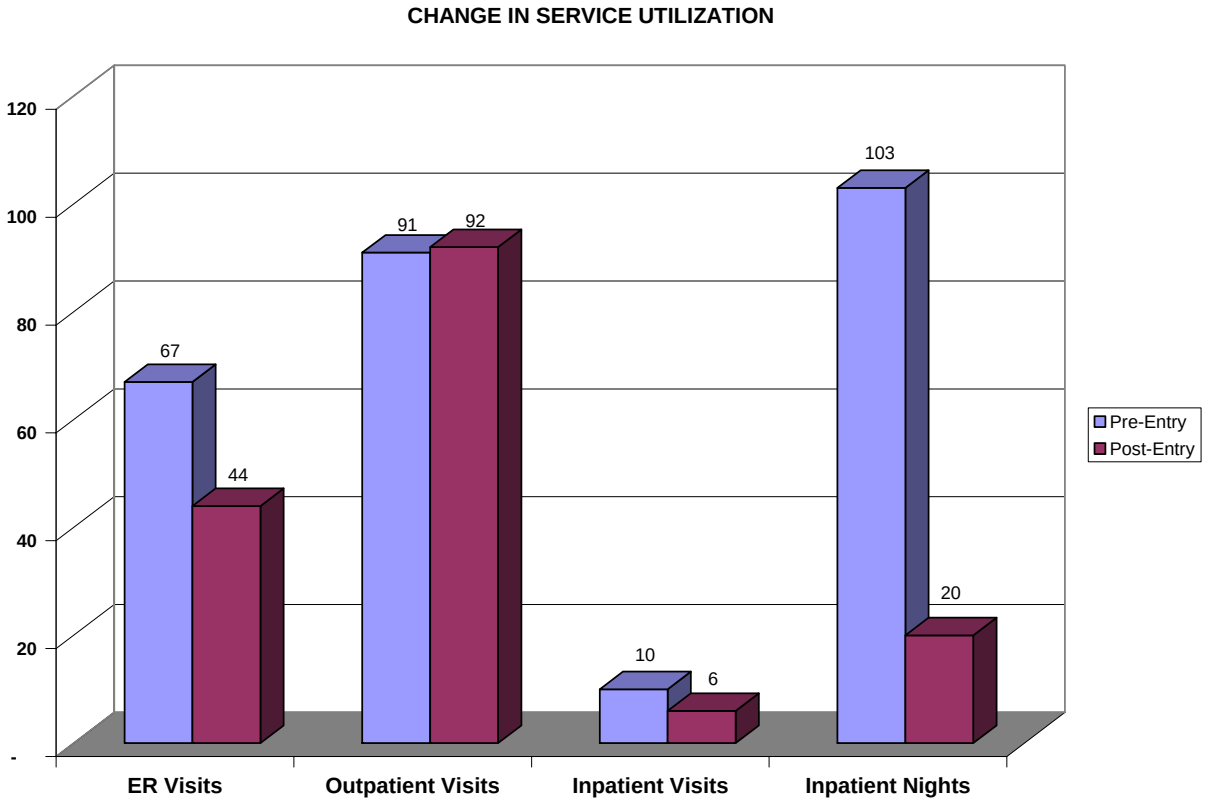
The sample cohort accounted for 10 **inpatient hospital visits** for a total of 103 **inpatient nights** in the period prior to entry in the DHFC program. They had 6 inpatient hospital visits for a total of 30 inpatient nights in the period after entry in the program. Thus, inpatient visits were reduced by 40% and inpatient nights were reduced by 80.6% after entry in the program. The associated costs of inpatient hospital care for this group decreased from $197,173 to $67,118, a decrease of $130,055 or 66.0%.

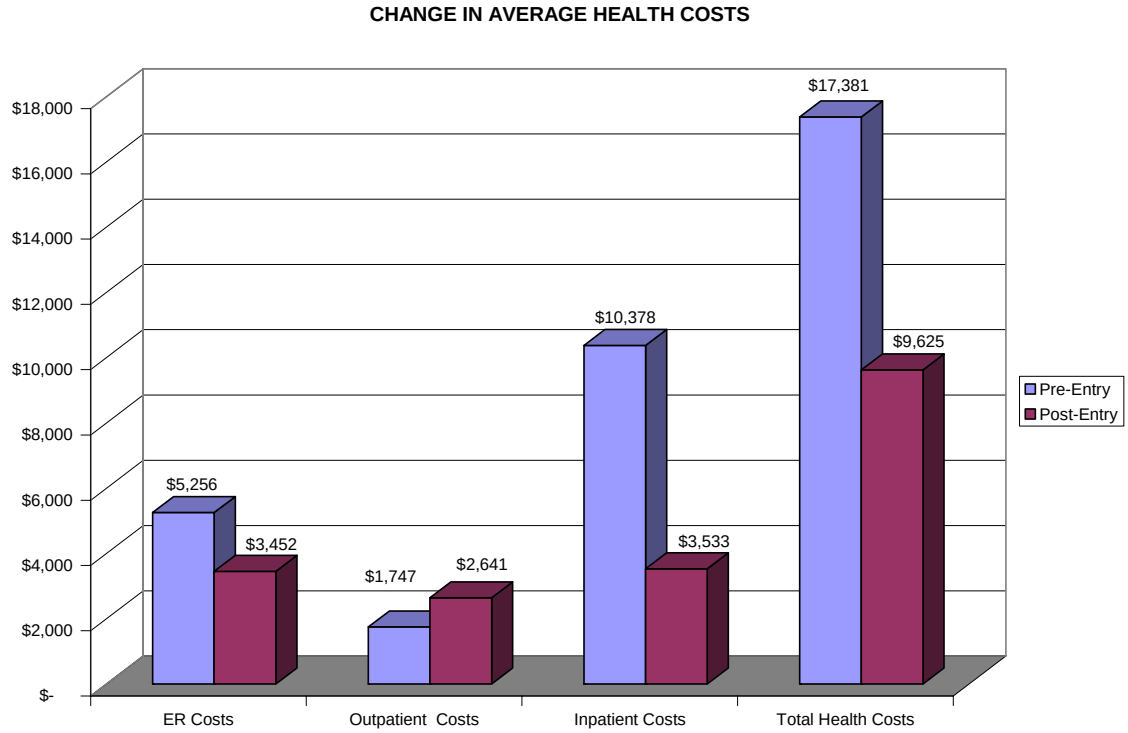
Overall, the total health related costs for this group decreased from $330,231 to $182,881, a decrease of $147,350 or 44.6%. The average total health related costs decreased from $17,381 to $8,625 , a decrease of $7,755 per person or 44.6%.

The following charts show the changes in average health service utilization and costs for program participants.

## CHANGE IN HEALTH CARE UTILIZATION AND COSTS

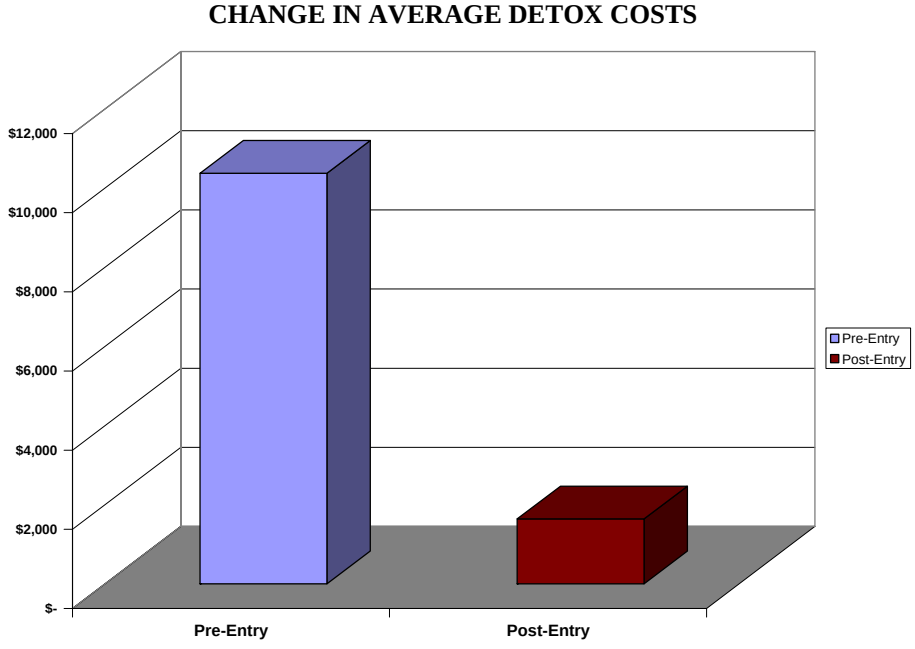
| N= 19 | Total Pre-Entry | Average Pre-Entry | Total Post-Entry | Average Post-Entry | Total Change | Average Change | % Change |
|---|---|---|---|---|---|---|---|
| ER Visits | 67 | 3.53 | 44 | 2.32 | - 23 | - 1.21 | - 34.3 % |
| ER Costs | $ 99,860 | $ 5,256 | $ 65,579 | $ 3,452 | - $34,280 | - $1,804 | - 34.3 % |
| Outpatient Visits | 91.00 | 4.79 | 92.00 | 4.84 | 1.00 | 0.05 | 1.1 % |
| Outpatient Costs | $ 33,199 | $ 1,747 | $ 50,184 | $ 2,641 | $16,984 | $ 894 | 51.2 % |
| Inpatient Visits | 10.00 | 0.53 | 6.00 | 0.32 | - 4.00 | - 0.21 | - 40.0 % |
| Inpatient Nights | 103.00 | 5.42 | 20.00 | 1.05 | - 83.00 | - 4.37 | - 80.6 % |
| Inpatient Costs | $ 197,173 | $ 10,378 | $ 67,118 | $ 3,533 | -$130,055 | -$6,845 | - 66.0 % |
| Total Health Costs | $ 330,231 | $ 17,381 | $ 182,881 | $ 9,625 | -$147,351 | -$7,755 | - 44.6% |

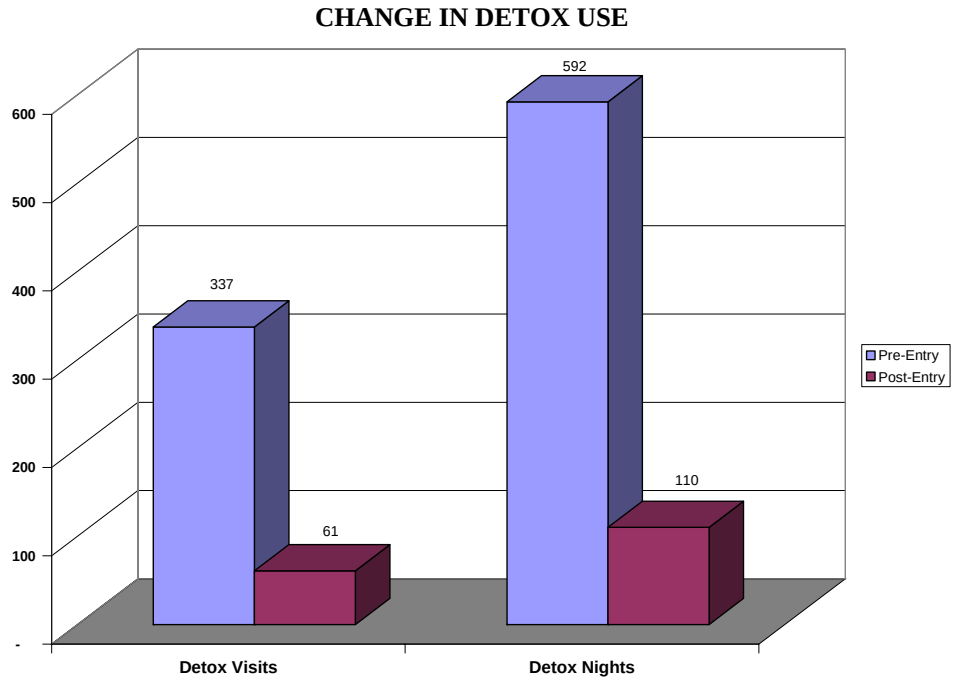





## B. Detox Costs:

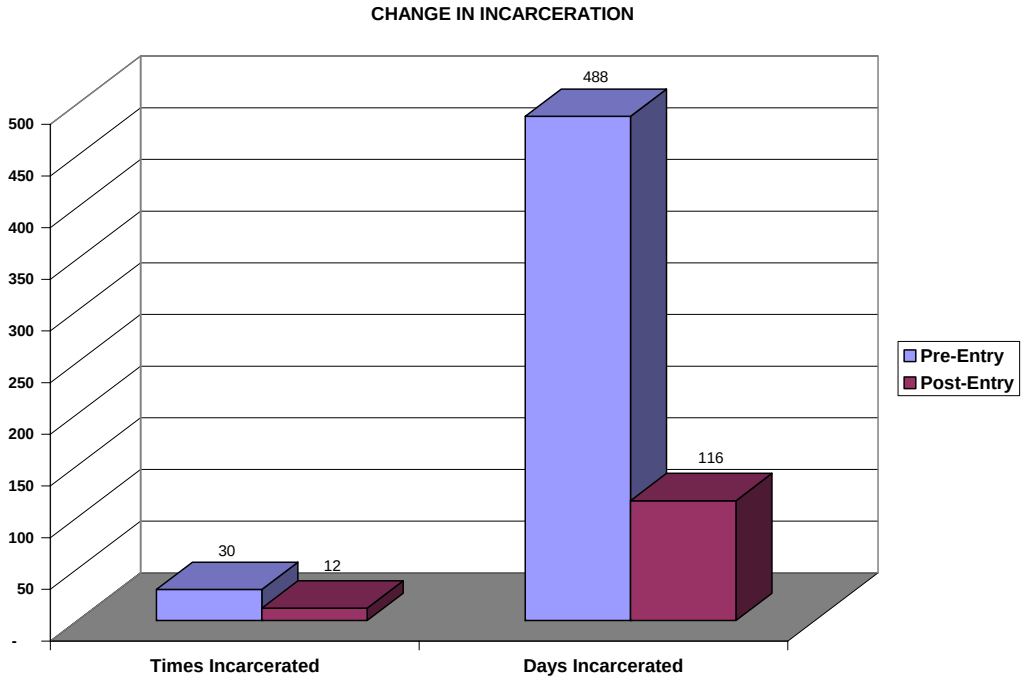
The sample cohort utilized **detoxification services** a total of 337 times in the period prior to entry in the DHFC program. This accounted for 592 **detox nights**. This same cohort had 61 detox visits for a total of 110 detox nights in the period after entry in the program. Thus, detox visits declined by 81.9% and detox nights declined by 81.4% after entry in the DHFC program. The associated costs of detox services for this group declined from $197,086 to $31,579, a reduction of $165,915 or 84.2%. The average per person detox costs savings was $$8,732.

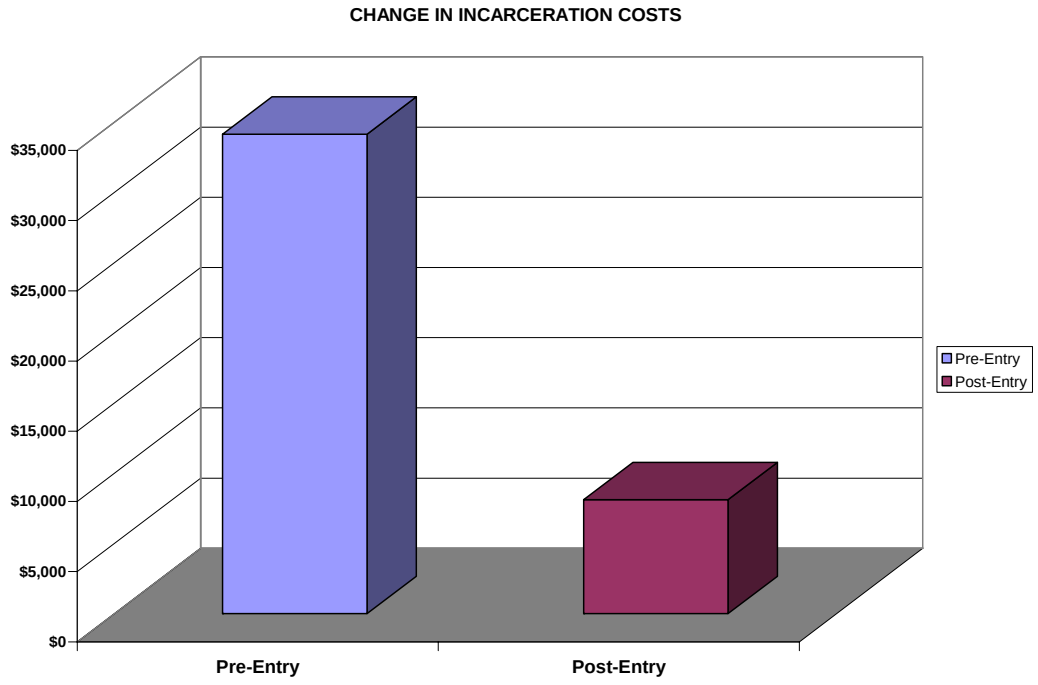





## C. Incarceration Costs:

The sample cohort was **incarcerated** at county jails a total of 30 times in the period prior to entry in the DHFC program. This accounted for 488 **nights of incarceration**. This same cohort had 12 jail visits for a total of 116 jail nights in the period after entry in the program, a reduction of 60% of jail visits and a reduction of 76.2% of jail nights. The associated costs of incarceration for this group declined from $34,160 to $8,120, a reduction of $26,040 or 76%.





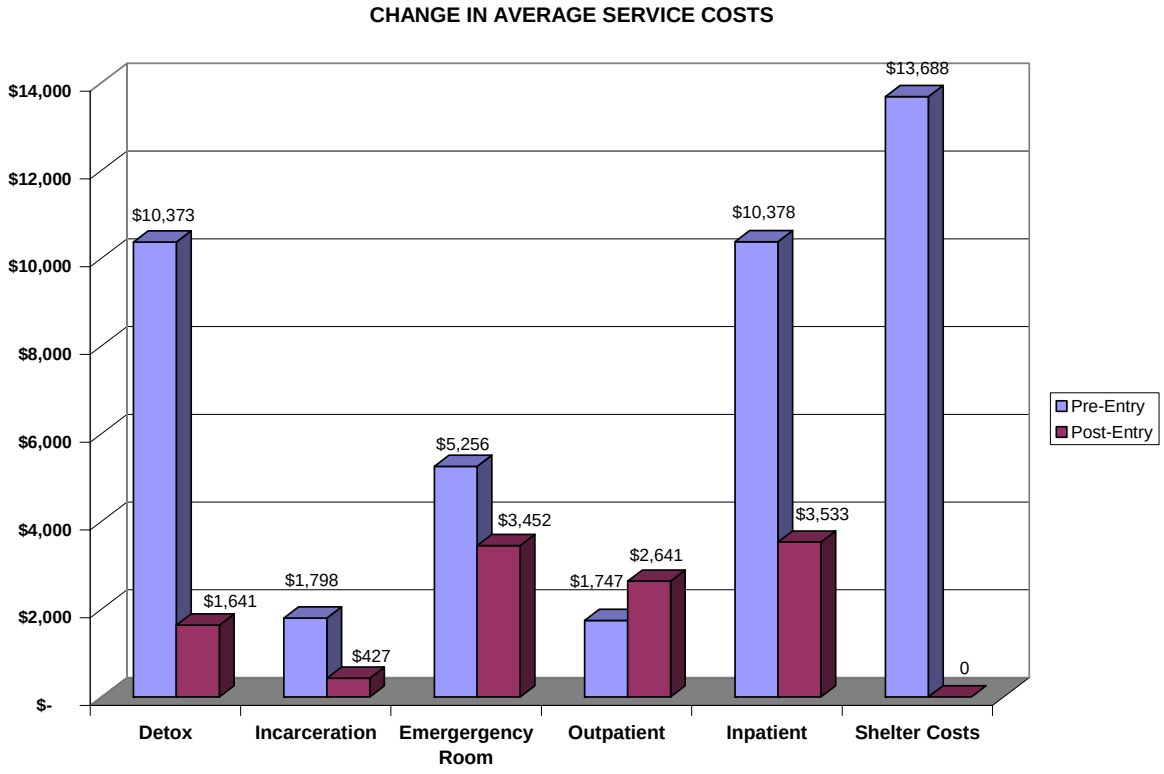

| CHANGES IN INCARCERATION | | | | | | | |
|---|---|---|---|---|---|---|---|
| N= 19 | Total Pre-Entry | Average Pre-Entry | Total Post-Entry | Average Post-Entry | Total Change | Average Change | % Change |
| # of Incarcerations | 30 | 2 | 12 | 1 | - 18 | - 1 | - 60.00 % |
| Days Incarcerated | 488 | 26 | 116 | 6 | - 372 | - 20 | - 76.23 % |
| Incarceration Costs | $ 34,160 | $ 1,798 | $ 8,120 | $ 427 | - $26,040 | - $ 1,371 | - 76.23 % |

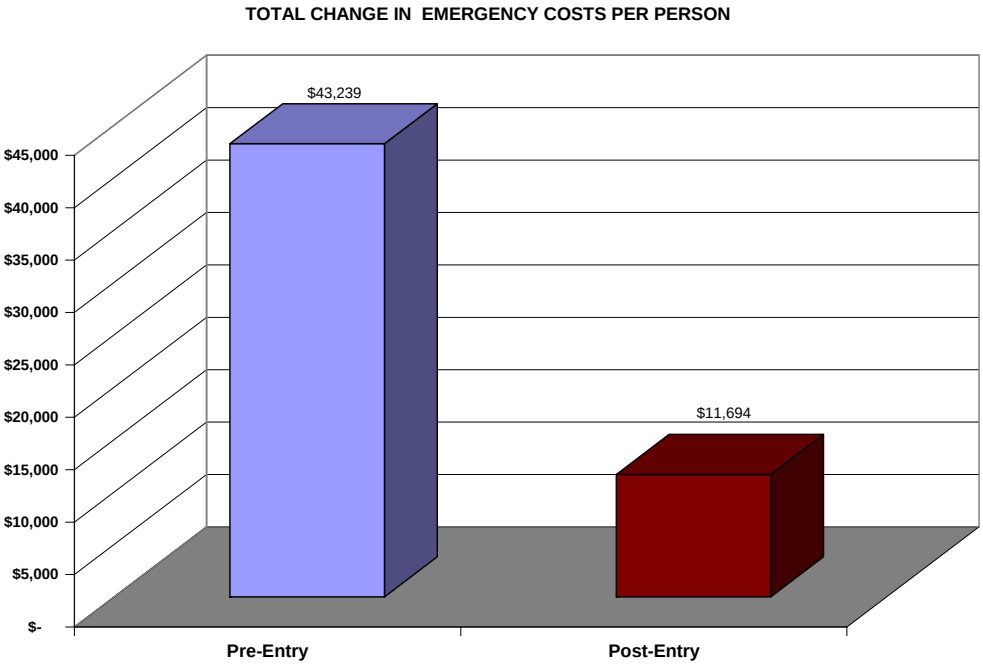
## D. Emergency Shelter Costs:

All participants in the sample cohort utilized emergency shelter services in the period prior to entering the DHFC program. According to the surveys, we estimate the participants used emergency shelter services and average of 274 nights per year prior to entering the program. The average emergency shelter costs in Denver are $25 per night. Thus, the associated costs of emergency shelter utilization for this group were $13,688 for the period prior to entering the DHFC program. The costs of emergency shelter were reduced to $0 for the period after entering the program.

## E. Total Costs Savings

The total emergency related costs for the sample cohort for the 24 months prior to entry in the DHFC program was $821,539. The total emergency related costs for this group after entering the program was $222,186, a reduction of $599,356 or 72.95%. The total costs savings amounts to an average of $31,545 per participant.




There are a total of 100 participants in the Denver Housing First Collaborative. In addition, there are 50 participants in the 16th Street Housing First Program. If the average costs savings of $31,545 are applied to each of the 150 participants in Denver housing first programs, the associated costs savings over the two year period would amount to $4,731,734 for these participants.

There are an estimated 513 additional chronically homeless individuals in Denver, according to the 2006 MDHI point in time study. If these costs savings are applied to each of the 513 persons eligible to participate in Denver housing first programs, the associated costs savings over the two year period would amount to $16,182,531.

The following chart shows the average service costs per person and the projections of cost savings for the current 150 housing first program participants and the anticipated cost savings for the 513 chronically homeless persons who could be served through a housing first approach if additional funding was provided to expand the program.

| | Average Pre-Entry Costs Per Person | Average Post-Entry Costs Per Person | Average Cost Change Per Person | Projected Savings for 150 Participants | Projected Savings for 513 Participants |
|---|---|---|---|---|---|
| Detox | $ 10,373 | $ 1,641 | -$8,732 | -$1,309,856 | -$4,479,706 |
| Incarceration | $ 1,798 | $ 427 | -$1,371 | -$205,578 | -$703,077 |
| Emergency Room | $ 5,256 | $ 3,452 | -$1,804 | -$270,600 | -$925,452 |
| Outpatient | $ 1,747 | $ 2,641 | $894 | $134,100 | $458,622 |
| Inpatient | $ 10,378 | $ 3,533 | -$6,845 | -$1,026,676 | -$3,511,231 |
| Shelter Costs | $ 13,688 | 0 | -$13,688 | -$2,053,125 | -$7,021,688 |
| TOTAL | $ 43,239 | $ 11,694 | -$31,545 | -$4,731,734 | -$16,182,531 |

The costs of operating the Denver Housing First Collaborative are $13,800 per person per year for housing and assertive community treatment services. Thus, the total two year costs are $26,800.

When the investment costs of providing comprehensive supportive housing and services are factored in, there is a net cost savings of $4,745 per person. Thus, the total net cost savings for the current in the Denver housing first programs are projected to be $711,734. The projected net cost savings for all 513 chronically homeless persons, if provided access housing first programs, would be $2,424,131.

The following table sets forth projected the net costs savings for the current 150 housing first program participants and the anticipated net cost savings for the 513 chronically homeless persons who could be served through a housing first approach if additional funding was provided to expand the program.

| | Average Pre-Entry Costs Per Person | Average Post-Entry Costs Per Person | Average Cost Change Per Person | Projected Savings for 150 Participants | Projected Savings for 513 Participants |
|---|---|---|---|---|---|
| Total Emergency Costs | $ 43,239 | $ 11,694 | -31,545 | -4,731,734 | -16,182,531 |
| **Housing First Costs** | | | | | |
| Housing | N/A | $ 10,800 | $ 10,800 | $ 1,620,000 | $ 5,540,400 |
| Services | N/A | $ 16,000 | $ 16,000 | $ 2,400,000 | $ 8,208,000 |
| Total Housing & Services | N/A | $ 26,800 | $ 26,800 | $ 4,020,000 | $13,748,400 |
| Difference | $43,239 | $38,494 | -$4,745 | -$711,734 | -$2,434,131 |

## VI. PROGRAM OUTCOMES:

The following outcomes have been documented through the local and national evaluation process for the first two years of the program:

**Goal 1. Increase long-term housing options for persons experiencing chronic homelessness, mental illness, and substance abuse disorders.**

- The DHFC has created 100 housing opportunities for chronically homeless individuals with multiple disabilities.
- A second Housing First Program has been established providing 50 additional supportive housing units.

**Goal 2. Increase housing stability for 75% of program participants.**

- 77% of program participants initially housed are still housed in the program
- 80% of participants maintained initial housing for at least 6 months
- 68% of those enrolled in the program for more than one year have maintained their housing for at least one year.

**Goal 3. Increase the health and mental health status and quality of life for 65% of program participants.**

Note: The local evaluation has followed a subset of participants with assessments at intake and follow-up intervals. Based on this subset of participants, the following has been documented:

- 50% of participants have improved their health status.
- 43% of participants have improved their mental health status
- 15% of participants have decreased their substance abuse
- 64% of participants have improved their overall quality of life.

**Goal 4. Assist at least 75% of program participants to obtain employment or public benefits for which they are eligible.**

- 34% of participants have obtained SSI, SSDI, VA or OAP benefits through assistance by the program. An additional 21% entered the program with these benefits and continue to receive them.
- 45% of participants have applied for or are in the appeals process for SSI, SSDI, VA or OAP benefits
- 47% of participants are receiving Medicaid or Medicare.
- 15% of participants are employed or seeking employment
- The average monthly income of participants has increased from $185 at entry to $431 currently.

**Goal 5. Decrease the use of expensive emergency services.**

- The number participants enrolled in the program for 24 months who are using emergency services such as hospitalization, substance inpatient treatment, detox or jail has decreased by 60% since enrollment in program.

## VII. NEXT STEPS

The initial DHFC funding continues through January 31, 2007. The program will continue to provide housing and assertive community treatment services to program participants. The local and national evaluations will continue to document progress in meeting the goals of the collaborative. A final three year evaluation is expected to be released in mid 2007.

During the next year, there are three critical activities necessary for continued success of the program. These are:

**Transition of Participants to Mainstream Programs:** The program will continue the process of transitioning participants who have become stable in their housing and treatment to mainstream service systems. To date, a handful of participants are in the process of transitioning their mental health care to the Denver Mental Health Center. These participants continue to receive their housing assistance through the DHFC. However, the transition of their ongoing treatment to the mainstream systems allows the program to begin serving additional chronically homeless persons on the streets. This is crucial to be able to serve the hundreds of chronically homeless persons still on the streets of Denver.

**Securing Continuation Funding:** The DHFC was initially funded through a unique collaboration of federal funding partners. These agencies committed three years of funding for services and five years funding for housing. However, the expectation was that continuation funding would be obtained at the local or state level. The project has had numerous discussions with potential funders. However, as of this date, full continuation funding has not been secured. It is critical that such funding be found in order to continue the important work of the collaborative and to help meet Denver's goal of ending homelessness in ten years.

**Expand Demonstration Programs throughout Colorado:** There is growing interest in communities throughout Colorado to replicate the Denver Housing First Collaborative approach. Agencies in Denver, Fort Collins, Colorado Springs, Grand Junction, Loveland, Aurora and Boulder have begun discussions with the Colorado Legislature about developing a demonstration program in Colorado to continue and expand integrated housing and service programs for chronically homeless individuals through a housing first approach. The cost savings documented in this report should prove useful in demonstrating the need for further expansion of this type of program.

## VII. CONCLUSION:

The first two years of the Denver Housing First Collaborative have demonstrated significant progress in ending homelessness for some of the most vulnerable individuals in our community – chronically homeless individuals with disabilities. The challenge of targeting the most difficult to serve population has resulted in promising results of increased housing stability, increased health status, improved mental health, and improved quality of life for the participants. It has also reduced the need for more expensive emergency services in the community, such as hospitalization, detox, and jail, saving significant taxpayer funds.

It is critical to create an ongoing source of funding to continue housing first programs in Denver and to replicate and expand these programs throughout the state.

It is clear that the housing first approach offers tremendous promise for improving the health status of chronically homeless individuals while reducing taxpayer funded emergency costs of emergency room care, hospitalizations, incarceration and detox. Furthermore, the overall quality of life for the community can be significantly improved as the negative impact of individuals living and sleeping on the streets is eliminated.