CENTRAL CITY CONCERN

ESTIMATED COST SAVINGS FOLLOWING ENROLLMENT IN THE COMMUNITY ENGAGEMENT PROGRAM

FINDINGS FROM A PILOT STUDY OF HOMELESS DUALLY DIAGNOSED ADULTS

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Herbert & Louis LLC

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Abstract

This report discusses the estimated cost-benefits of providing community based therapeutic care and case management to adults experiencing chronic homelessness and multiple disabling conditions. The treatment approach used was adapted from the empirically tested Assertive Community Treatment (ACT) model and is locally referred to as the Community Engagement Program (CEP). This model of treatment has demonstrated good successes in a variety of settings across the country dating back to the early 1970's.

The estimated pre-enrollment costs associated with physical health care, incarceration, and treatment for mental health and addiction issues were based on the self-report of 35 volunteer clients of the three teams (CEP II, III and IV) comprising the Community Engagement Program (CEP). They participated in a series of rigorous interviews designed to reconstruct the past five years of their service utilization in six key domains. Average costs for these services were then estimated based on existing databanks and expert opinion. A detailed review of client records was undertaken to determine the service utilization/cost in the six domains during the first year following enrollment in CEP. The investment in treatment and housing during this time period was calculated based on actual funding amounts.

The estimated pre-enrollment annual cost for health care and incarcerations per client was $42,075. For the first year following enrollment in services these costs were reduced to an estimated $17,199. The investment in services and housing during the first year of enrollment was averaged to approximately $9,870. Combining the investment in services with other health care utilization, the total per client expenditure for the first year of enrollment was $27,069. This represents a 35.7% ($15,006 per person) annual cost saving for the first year following enrollment in CEP. Extrapolating this savings to the approximate number of clients served each year (n=293) the estimated cost savings would amount to $4,396,758 per year. Of course, another way to look at this from a pessimistic perspective would suggest that the cost to the community would be approximately $12,327,975 if there were no CEPs.

Experience suggests that the first year of treatment is the most expensive. Based on this, it is highly recommended that further studies, over a greater period of time, be undertaken to demonstrate the on-going cost savings of the CEP approach as clients remain stabilized in the community over multiple years.

Introduction

Numerous cost-benefit studies over the past 25 years have clearly demonstrated that the treatment of mental health and addictions problems saves significant amounts of money in the long term for the local community. Even in the face of this compelling empirical evidence, the efficacy of providing treatment to individuals who have experienced chronic homelessness, mental illnesses, and substance abuse problems continues to face a pervasive doubtfulness regarding the allocation of scarce resources to provide treatment and rehabilitation.

The issue of determining cost-benefit is complex. Many of the social costs attributable to the chronically homeless, dually diagnosed individuals are spread across a spectrum of social, health care, and safety services that encompass both public and private entities. For the most part, it is difficult and expensive to precisely measure actual costs throughout the system. As well, the private and public budgeting processes do not tend to itemize these costs so the costs become easily buried within individual agency balance sheets and hidden within the community's general economic activities. Finally, general acceptance of the effectiveness of treatment for this population is frequently met with skepticism regardless of empirical evidence to the contrary.

This skepticism comes in many forms, but generally stems from disdain by many in the community with social prejudices against the chronically homeless, the mentally ill, and the alcoholic/drug addict. On the other hand, serious and legitimate questions are asked regarding the effectiveness of individual treatment programs. If rigorous national studies have demonstrated cost-benefits, then local treatment programs must either demonstrate fidelity to the effective, or best practice, treatment models from the literature or provide empirical evidence for local savings to the community of their particular treatment model.

Fully measuring cost-benefits of treatment requires the documentation of multifarious aspects of both costs and benefits. In the most rigorous studies, costs and benefits should include new income (employment gained by the client following treatment and the ensuing displacement of public support for living as well as taxes paid); reductions in utilization of inpatient, emergency, and outpatient physical health care (including ambulance and other public/private emergency transportation); reductions in utilization of the more restrictive and more costly inpatient and emergency care for mental illnesses and addictions; costs associated with ongoing continuing or aftercare; reductions of encounters with safety services ranging from time spent by the local beat police to court, jail, and prison incarceration costs; and other costs associated with subsidized housing, publicly paid health insurance, food subsidies, employment training, further academic or trade skills preparation, for example.

In cases where individuals entering treatment have families, the social costs incurred by the family members that can be associated with substance abuse or mental illness should also be accounted for. Costs in this category could include, for example, encounters with child protective services. Additionally, the costs associated with loss of property due to theft or damage, harm to others resulting in medical care, and other ancillary costs should be accounted for in the cost-benefit study.

Finally, care must be taken when viewing these cost-benefits from a broad perspective. Due to limited resources, the criminal justice system for example, may not be able to experience an actual reduction in budget. Instead, the "increase" in resources gained from reduced encounters with this population most likely will be deployed more efficiently to other public safety issues which benefit the community.

Background

The Community Engagement Program (CEP) Teams are modeled after the successful Program of Assertive Community Treatment (PACT)[1] model. The PACT model found its beginnings in the late 1960's from research conducted on patients leaving inpatient care from the Mendota State Hospital in Madison Wisconsin. The research indicated that gains made by hospitalized patients quickly diminished as patients returned to the community. In 1972 the first multidisciplinary PACT team was established to carry the services of an inpatient psychiatric unit to the patients while they were in the community. These services included intensive treatment, rehabilitation, and support services to their clients in their homes, on the job, and in social settings. The PACT clients were persons with severe and persistent mental illnesses. (Allness and Knoedler, 1998)

Traditionally, the team is comprised of a board certified (or board eligible) psychiatrist, professionally degreed and licensed mental heath professionals, psychiatric nurse, vocational specialist, substance abuse specialist, and administrative support. Teams are normally managed by a Team Leader who is at least a masters level health care professional (therapist, nurse, or can be the psychiatrist). Staff to client ration is typically 1:10 and the hours of operation are 24/7. The overall goal of the PACT Team is to establish the community as the primary site of treatment and not a hospital. (Allness and Knoedler, 1998) Early successes of this model have demonstrated a reduced number and length of rehospitalizations, increased the time of employment, reduced symptomology, and demonstrated modest cost-benefit over inpatient services. (Stein & Test, 1980; Weisbrod, Test, & Stein, 1980)

Replication studies of this model confirmed its effectiveness (Hoult, Reynolds, Charbonneau-Powis, Weekes, & Briggs, 1983; Mulder, 1985; Olfson, 1990; Stein & Test, 1980; Test, 1992). A meta analysis (Burns & Santos, 1995) of studies completed from 1990 to 1994 of the model confirmed positive findings and discussed two studies that explored cost-benefit under controlled conditions with positive results. Positive results from a variety of more recent studies continue to confirm the cost-benefits of the model.

In order to meet the special needs of the dually diagnosed chronically homeless population, the CEP teams made adaptations to the traditional ACT model. There have been four CEP teams that have had slightly different target populations to serve based on the requirements of specific funding streams. The original CEP team was funded with federal PATH funds. Team II was funded by Multnomah County Mental Health and Addiction Services while Team III was funded through a three year grant under the auspices of the Interagency Council on Homeless (ICH) which was also in cooperation with U.S. Department of Housing and

[1] This is now commonly referred to in the literature simply as the ACT model.

Urban Development (HUD), the Veterans Administration and the US. Dept. of Health and Human Services. CEP Team IV was funded through a five year interagency grant from HUD and the U.S. Department of Labor (DOL) with an emphasis on Customized Employment.

Pilot Study Design and Procedures

Implementation of the CEP teams indicated that individuals being served were presenting very complex and potentially different sets of circumstances than traditional treatment populations, and this difference had not been adequately documented. One of the primary purposes of the pilot study was to establish a rich qualitative description of the clients receiving services in order to present a clear picture to the oversight committee,[2] funders, staff, and other stakeholders of the clients' very complex, enmeshed history and symptomology. The second goal of the pilot project was to establish a baseline of the pre-treatment costs associated with clients' utilization of community services and to compare those costs with the first year post-enrollment costs. Finally, the pilot research effort was to attempt to delineate potential pathways (etiology) clients' lives have taken to chronic homelessness, mental illness, and addictions. The findings from this effort are presented in a separate paper.

With very limited resources, the pilot study was designed with the intent of providing only a coarse baseline of costs associated with clients entering the community engagement treatment model. Originally, the small project was designed to include only an opportunity sample of 12 clients from Team III (ICH). As that effort was placed in the field, a decision was made to expand the scope of the study to include an opportunity sample from Teams II and IV[3] with a total targeted sample of 36.

The pilot study was designed, in light of funding limitations and the difficulty in collecting actual system-wide service utilization data, to collect self-reported service utilization. Realizing the potential limitations of collecting relatively accurate information from clients for a look-back period of five years, the data collection process was designed to follow a multi-session, life-review format carefully documenting the individual stories of the clients including the collection of quantitative data to assist in the analysis.

This approach has proven to be effective in aiding in the process of accurately recalling past events and experiences. Most of what is known about homelessness, joblessness, and the etiology of mental illness, including addictions, is based on correlational research. Although providing a substantial and critical body of knowledge, these survey approaches can inadvertently filter out elemental information which is of paramount importance towards understanding the dynamics of the problems faced in attempting to eliminate homelessness

[2] The oversight committee was established as part of the two federally funded grants and came to become be an important stakeholder as an entity in the overall development of the city of Portland's rigorous ending homelessness strategy.

[3] By the time the pilot study was undertaken, Team I funding had dissipated and staffing capacity of that team was transferred to the other teams.

while treating mental illnesses and addictions. Therefore, several domains were designed to be of focus in the structured interviews.[4]

These domains included the individual's early life experiences, history of homelessness, mental health, employment, family history of health and homelessness issues, criminality, service utilization and of special importance, their perceptions of what did and did not work for them in the past. Additionally, consumer satisfaction information was collected from the participants to assist in blending consumer input into the planning and review process.

The structure of the three interviews was to facilitate recollection though a modified follow-back calendar method which characteristically looks back for 1 to 3 months. The technique solicits important marker events which the participant can readily place in sequence over time. As the interviews progress, other important events are then "placed" in sequence before or after the major life events. Having a minimum of two or more days between interviews allows the participant to naturally reflect on the topics of the interview. Subsequent interviews then return to the sequence of events and continue to refine the timing and situations of key events, especially those under study. Although not perfect, this process allows for greater reliability of information than attempting to undertake the collection of such information in one or two sittings.

One of the acknowledged shortcomings of this particular interview approach is that it requires a relatively higher level of functioning to participate in the structured recollection process (which can be tedious at some points) as well as to commit to, and follow through with, a sequence of interviews over the course of a two week period. Additionally, the study was completely voluntary so the sample was certainly not randomized. Token incentives of $5 for each of the first two interviews and $10 for the final interview were provided.

The CEP Teams were provided a formal overview of the study purpose, the procedures, and with copies of the interview questions. In turn, CEP team staff identified potential participants and provided them with an overview of the purpose of the pilot study and the commitment necessary. Those individuals who volunteered were asked to sign an informed consent and release to participate and were then identified to the researchers.

Findings

Thirty-nine participants were identified, 35 completed the three interview schedule, and 34 records were reviewed of those who completed their first year of treatment on one of the CEP teams. Of those who completed the interviews, 28 (80%) were males. The average age of participants was 42.2 years and they were primarily Caucasian. The average years of education completed was 11.9 and the average length of unemployment was 3.7 years. This closely approximates the demographics of all CEP enrollees. The average length of homelessness over the past five years was 3.7 years. It should be noted that a concurrent

[4] Although the three interview sessions were designed around a highly structured interview schedule, the highly skilled, masters level interviewers were encouraged to allow the participants to "tell their story" to facilitate the identification of the sequence of events, as well as the extent of the service encounters.

study funded through the ICH cooperative grant reports the mean years of homelessness (lifetime) as 8.6 years for the participants on the CEP III team.

The average annual pre-enrollment per individual costs associated with the major services was approximately $42,075. As expected, the major cost was inpatient hospitalization for physical health care. Alcohol and Drug (A&D) inpatient treatment costs were second followed by outpatient mental health treatment and inpatient mental health treatment. Although using a different methodology, a study of pre-treatment cost of a similar population in New York City found annual costs to be approximately $40,500 (Culhane, D., Metraus, S., Hadley, T., 2002).

Table 1. Key Service Utilization Markers Past Five Years - Pre-enrollment

	n	Total Encounters	Average Cost (Dollars)	Total Cost (Dollars)
1. Inpatient Physical Health Hospitalization	23	1375	4,317 [5]	5,935,875
2. Emergency Room Visits	29	397	492 [6]	195,324
3. Physical Health Care Outpatient Visits	24	109	100 [7]	10,900
4. A & D Inpatient Nights	21	3905	100 [8]	390,500
5. A & D Outpatient Visits	17	3803	15 [9]	57,045
6. Mental Health Inpatient Nights	14	355	800 [10]	284,000
7. Mental Health Outpatient Visits	15	3196	100 [11]	319,600
8. Incarceration Days	16	1478	115 [12]	169,970
Total Cost for 5 Years (35 Clients)				7,363,214

Table 1 is a presentation of the pre-enrollment information by major service type. This table provides the number of individuals from the sample reporting service utilization in each of the key domains. The average cost per encounter data provided was derived from conversations

[5] This is using MEDICARE average costs. MEDICAID costs were slightly lower. This information provided by the Oregon Association of Hospitals and Health Systems at the request of the researcher.

[6] This figure provided by Oregon Health and Sciences University (OHSU) Department of Emergency Medical research.

[7] None of the private or public entities in Oregon including State and County Health Departments, Associations nor OHSU were able to provide even a guesstimate of what an average cost per visit might be. Therefore this figure is a very rough estimate based on the series of ranges provided by those interviewed.

[8] The prevailing daily rate reimbursed by the State for approved A&D residential care during the look-back period.

[9] This is based on the State slot rate of $2358 for A&D outpatient. In speaking with state representatives at the Office of Mental Health and Addiction Services, they base their calculations on 2 individuals per year filling a "slot." The calculation was then made estimating the cost per visit based on intensive OP services of an average of 3 per week.

[10] Provided by the Office of Mental Health and Addiction Services, state of Oregon.

[11] Neither the State nor other sources were able to provide a reliable average cost per outpatient visit. Therefore, this is only an opinioned estimate by experts without supporting data.

[12] Provided by the Multnomah County Jail. In their literature, it was reported that average costs per day for mentally ill and those experiencing withdrawal (substance abusers) was higher than the overall average but no empirical data could be discerned. It must be noted that this is only for county jail. State and Federal prison costs are higher but were not split out of the data since most of the incarceration time reported was jail time.

and reports from a number of experts within the State. The source for the average cost for each category is discussed in the footnotes. It must be noted that these are coarse measurements and there is room for discussion regarding the average rates utilized in the calculations. Nonetheless, every effort was made to access reliable cost information from a variety of sources.

Table 2 is a presentation of the findings from a records review conducted by the author and his staff. Only those encounters that were outside the parameters of services provided under the funding for the programs were included in the calculations. The average post-enrollment annual cost per client for services was $17,199.

Table 2. Key Service Utilization Markers First Year Post-Enrollment

	n	Total Encounters	Average Cost (Dollars)	Total Cost (Dollars)
1. Inpatient Physical Health Hospitalization	8	115	4,317	496,455
2. Emergency Room Visits	10	75	492	36,900
3. Physical Health Care Outpatient Visits	15	66	100	6,600
4. A & D Inpatient Nights[13]	6	243	100	24,300
5. Mental Health Inpatient Nights	3	15	800	12,000
6. Incarceration Days[14]	3	74	115	8,510
Total Cost for Year (34 Clients)				584,765

It must be noted, that longitudinal studies looking at costs associated with recovery from alcoholism in the non-homeless population have found that physical health care costs usually rise significantly the first year following enrollment and do not begin to significantly drop until the third year following treatment. This is due to both added attention to physical wellbeing and increased opportunity to access treatment.

The average annual treatment cost per client, including housing was based on the total funding received by the three CEP teams[15] including funding budgeted for housing, the additional expense of methadone maintenance treatment received by seven of the clients in the study (see footnotes for calculations), and the amount associated with outpatient mental health and addictions services. The result was an estimated first year per client treatment investment of $9,870

[13] Inpatient encounters for addictions and mental health were clearly outside the goals of the CEP efforts although serious relapses were expected. An argument could be made that the outpatient treatment costs - outside the CEP team services - would be included in treatment costs.
[14] For all 3 of the individuals in this category the incarceration was due to warrants that were outstanding at the time of enrollment in the program.
[15] This information was provided by program staff and included and is based on actual contracts.

Table 3. Average Annualized Treatment Investment Expenditures per Client			
	CEP II	**CEP III**	**CEP IV**
Funding Duration	2 Years	3 Years	3 Years
Service Funding	Multnomah County $1,020,072	CMHS/CSAT $1,948,128 HRSA $900,000 VA $234,069	DOL $1,875,000
Housing Funding	Multnomah County $456,000	HUD $1,197,864	HUD $1,795,140
Clients Served	120	140	134
Average Annual Per Client Expenditure	$6,150	$10,190	$9,130
Overall Annual Per Client Expenditure			$8,490

Table 4. Average Annualized CEP Treatment Investment	
	Average Annual Cost (Dollars)
1. All Program Average per Client Annual Expenditure	8,490
2. Methadone Treatment[16]	828
3. A & D Outpatient Visits[17]	23
4. Mental Health Outpatient Visits[18]	529
Total Annualized Average Treatment Investment	9,870

Discussion & Conclusion

As noted above, this baseline pre-enrollment key service encounter cost is a very coarse measurement. There is arguably room for discussion regarding the potential weaknesses of the pilot study design as well as the derivation of the average cost per encounter calculations.

[16] Methadone treatment was provided by outside agencies and not paid for by the program funding. To calculate this treatment cost, Multnomah County provided average contract rates for services that included an average cost of approximately $700 for the first month, $390 for months 2 through 6, and $300 from months 6 through 12. The average cost for each month following the first year was reported to be approximately $270. The records indicated that the clients enrolled in this treatment had done so prior to enrollment in CEP (and were not successful in that treatment) so the averaged cost for this report included 5 months at $390, 6 months at $300, and one month at $270. The averaged cost per client participating in this treatment was then set at $4,020, or $28,140 annually for the 7 clients. This cost estimate spread across the sample of 34 clients was then $828.

[17] Non-CEP outpatient A&D visit were included in the pre-enrollment costs based on the hypothesis that these treatment services were ineffective and hence an enrollment in CEP was necessary. They are included in the treatment investment figures for post-enrollment as they appeared to be an adjunct to the CEP treatment planning. Inpatient A&D continued to be counted on the cost side of the equation because the goal of CEP is to keep clients out of inpatient/residential care - although this is expected. This figure was based on 2 clients accessing non-CEP funded A&D care a reported 53 times.

[18] See above. Also, this figure was based on 6 clients reported with 180 encounters that appeared to be mostly for medications management at other programs where they may have been previously enrolled and had an established relationship with a physician or nurse practitioner.

Nonetheless, it must be stressed that if sufficient funding were available for a rigorous prospective study to collect detailed and verified service utilization the costs would be much greater. The rationale for this hypothesis is based on two factors both of which related to design weakness of this small pilot study. First, only higher functioning participants from the pool of CEP clients were included in this pilot study. This was reinforced by the opportunity sample selection process where Team staff were asked to identify those whom they felt would be able to comply with the interview schedule. (Anecdotally, Team staff confirmed that, by in large, participants who completed the interview process were the higher functioning clients of their case load.[19])

Secondly, although every effort was made in the design to accurately identify service utilization through self-report, five years is a difficult expanse of time for which to solicit perfect recall. It is expected that pre-enrollment service utilization was most likely under reported by participants.

For the most part, chronically homeless persons do not have the opportunity to do preventive health care activities prior to enrollment. Only the worst of the physical problems are attended to while homeless and usually at the most expensive intervention level (ER and inpatient hospitalization). As individuals become more stabilized they are expected to utilize more health care and dental services (if available) to deal with persistent and chronic physical health conditions and to utilize more services for minor health issues before they become major. For this reason, utilization of physical health care during the first year following enrollment was expected to increase. Nonetheless, this expectation was not met suggesting possibly that the availability of nurse practitioners might have alleviated the need to access outside care.

The estimated pre-enrollment annual cost per client was $42,075. For the first year following enrollment in treatment, this cost was reduced to an estimated $17,199. The investment in treatment for the first year of enrollment was averaged to approximately $9,870. Combining the investment in treatment with the other health care utilization, the total per client expenditure was $27,069. This represents a 35.7% ($15,006 per person) annual cost saving for the first year following enrollment in treatment. Extrapolating this savings to the approximate number of clients served each year (n=293)[20] the estimated cost savings of providing treatment to this population would amount to $4,396,758 per year. Of course, another way to look at this from a pessimistic perspective would suggest that the cost to the community would be approximately $12,327,975 if there were no CEP at all!

[19] This is not to infer that CEP clients are easy to treat. To the contrary, even the highest functioning clients have incredibly significant histories of long term problems anchored within their family of origin. CEP clients are, without question, one of the most difficult populations to treat and have long histories of continued failure with prior treatment models.

[20] Based on utilization data provided by the agency. It should be noted that clients are engaged in program activities on an individualized basis. For some, this may mean somewhat limited initial encounter time with staff as the client is supported and motivated through the stages of change and into the action stage where contact is extremely frequent. Similarly, as the client becomes fully established in the maintenance stage of recovery the extent of therapeutic contact is reduced.

Finally, the CEP Teams' quality management process includes routine monitoring of practices to an established fidelity scale developed for ACT teams, the findings of this ongoing process should be included in future cost-benefit reports to help demonstrate convergence with empirically based best practices. Although this would not supplant a rigorous longitudinal outcomes study, it should provide additional support towards a better understanding of how the local CEP effort compares with known best practices and facilitate a richer understanding of the full impact of the cost benefits of providing this model of care to the most severely affected chronically homeless individuals.

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