Examining the Program Costs and Outcomes of San Francisco's Behavioral Health Court:

Predicting Success

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Abstract

Mental health courts (MHC) are a type of jail diversion program that mandate defendants with a mental illness to community mental health treatment in lieu of incarceration. Several quasi-experimental studies have found that MHC participants experience fewer re-arrests, however, there is only one published study that has analyzed the costs and savings associated with an MHC. This study compares the annual operating cost of an MHC to the savings associated with reduced interactions with the criminal justice system and changes in mental health treatment utilization using a pre/post design (n=94). The annual program cost is completely offset in the third year post program entry due to savings in both the criminal justice and mental health system. This study also utilizes multivariate analyses to identify predictors of arrests and program graduation, which helps determine variables associated with higher/lower costs. Contrary to findings in other drug and MHC studies, a participant's age, the severity of the index offense, nor the participant's diagnosis help predict the odds of re-offending post program entry nor the odds of graduating from the MHC.

Mental health courts (MHCs) have two primary goals; to connect participants to mental health treatment and to reduce rates of recidivism. Connecting participants to mental health treatment is likely associated with an increase in costs whereas reduced recidivism rates are associated with cost savings. Because reducing arrests is associated with cost savings and is a main goal of MHCs it is useful to know the factors that predict future arrests and to know which client sub-groups have the most/least successful program outcomes. This study will compare the annual costs associated with operating San Francisco's Behavioral Health Court (BHC) to the costs associated with program outcomes (recidivism and mental health treatment services), and analyze factors that predict success. Success is operationalized as graduating from the program and/or experiencing fewer re-arrests post program entry. The primary research questions this study will address are as follows:

1) How does the annual BHC operating cost compare to the costs of program outcomes? How does this relationship change over time?

2) What factors help predict recidivism outcomes (number of arrests)?

3a) Who has higher odds of re-offending? 3b) Who has higher odds of graduating from the program?

Mental Health Court Literature:

Several outcome evaluations of MHCs have found reduced recidivism for MHC participants using a true-experimental design (Cosden, Ellens, Shnell, and Yamini-Diouf, 2003), an equivalent comparison group (McNeil and Binder, 2007; Moore and Hiday, 2006), or a pre-post design (Ferguson, Hornby, & Zeller, 2008; Ferguson, McAuley, Hornby, & Zeller, 2008; Herinckx, Swart, Ama, Dolezal, and King, 2005; Neiswender, 2004; Trupin, Richards, Wertheimer, and Bruschi, 2001).

The RAND Corporation conducted a cost analysis, using a pre/post research design, of an MHC program in Pennsylvania in 2007 (Ridgely, Greenberg, DeMartini, and Dembosky, 2007). The study compares the costs following the arrest that led to MHC entry to the costs following a similar prior arrest. Total costs included costs associated with arrests, prison, probation, cash assistance, MHC administration, jail, and mental health treatment. The findings show that in the one-year pre/post design there is a small overall net decrease in costs despite an increase in mental health treatment costs. Findings from the two-year pre-post analysis show a reduction in costs for both mental health services and jail expenses, resulting in a significantly larger net savings. MHC administration costs included salaries for management and administrative personnel, as well as overhead costs. However, the cost of the Judge and other court personnel were not included. The most distressed offenders (those with felony cases, psychosis, or high psychiatric severity and low functioning) produced the highest cost savings.

Because MHCs are modeled after drug courts it is also useful to review drug court cost-benefit analyses. A cost analysis of the San Francisco Drug Court, which included program costs such as case management costs, the cost per court hearing, drug test costs, etc., reported that in comparison to those who did not participate in a drug court, the cost savings per San Francisco Drug Court client was $14,297 (NPC Research/AOC, 2008).

Several studies have analyzed the characteristics of those who have successful MHC outcomes, whether success is defined by fewer arrests, graduation from an MHC, or the degree of program engagement. A study of Brooklyn's Drug Court reported that the expected incarceration time, which is determined by the severity of offense (misdemeanor, first felony, multiple felony, and predicate felony), in the event of program failure was a strong predictor of program retention and engagement (Rempel & DeStefano, 2001). Those who faced more incarceration time were more likely to complete 90 days of treatment and Phase One (four consecutive months of drug-free and sanction-less participation) of the program. This study also reported that younger participants were more likely to drop out of the program than older participants. Finally Cosden et al. found that participants with co-occurring disorders did not experience reduced recidivism rates whereas those who participated in the MHC without co-occurring disorders did experience fewer arrests (2003).

This study will contribute to the literature by providing another fiscal analysis of an MHC. This study also explores the relationship between participant characteristics and program outcomes such as graduation and re-arrests. Furthermore, this study analyzes program outcomes and costs up to three years post program entry.

Participant Demographics:
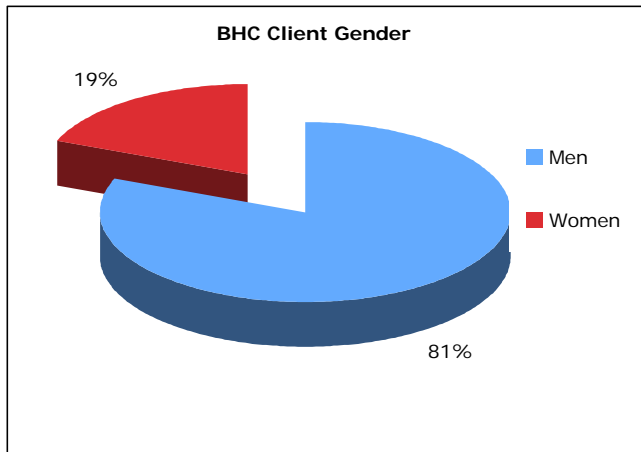
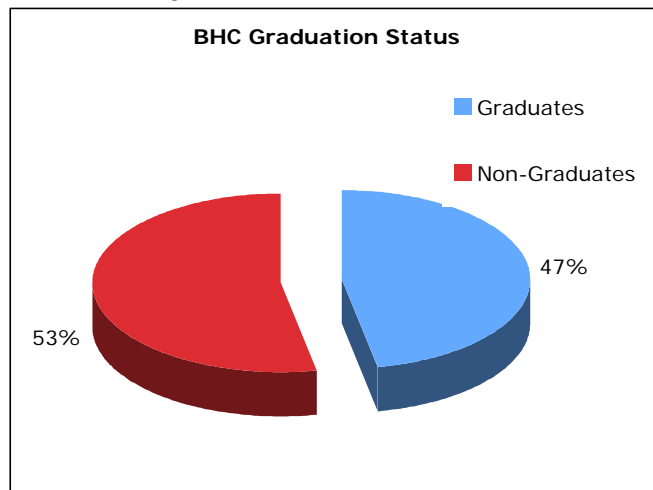*Figure 1.0 BHC Client Gender n=94*

Figure 1.1 BHC Graduation Status n=62
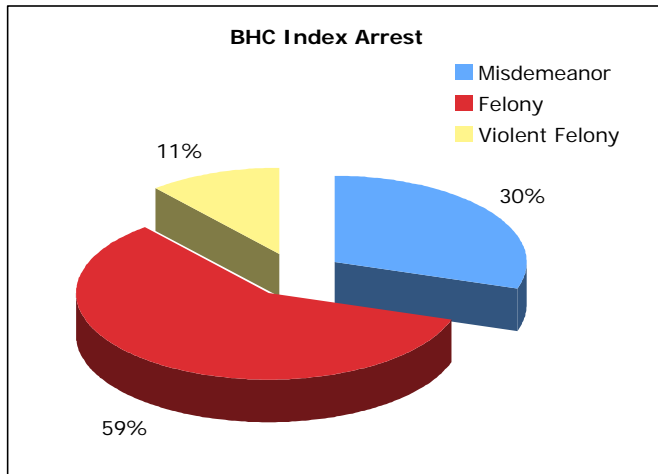

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Figure 1.2 BHC Index Arrest n=94

BHC Index Arrest

Misdemeanor
Felony
Violent Felony

11%

30%

59%

Figure 1.3 Age of BHC Clients n=94

Age of BHC Clients

20-29 years old
30-39 years old
40-49 years old
50-59 years old
60-69 years old

3%

21%

26%

28%

22%
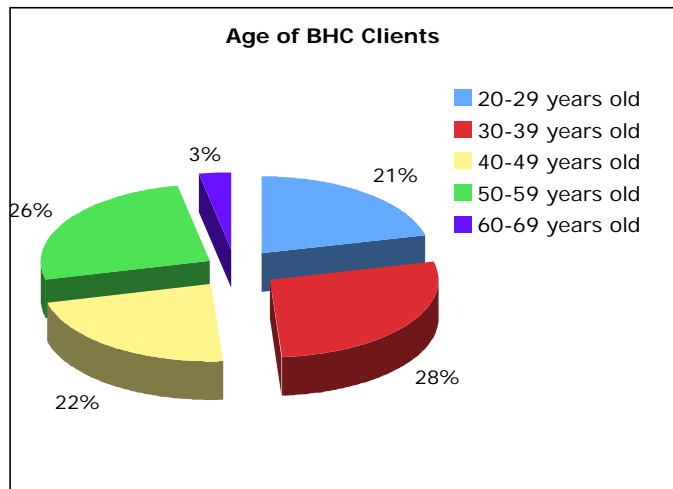
Figure 1.4 BHC Participant Diagnoses n=93

Psychotic disorder

Psychotic disorder with co-occurring substance abuse

Mood disorder with co-occurring substance abuse

Personality disorder with co-occurring substance abuse

Other

9%

12%

26%

14%

39%
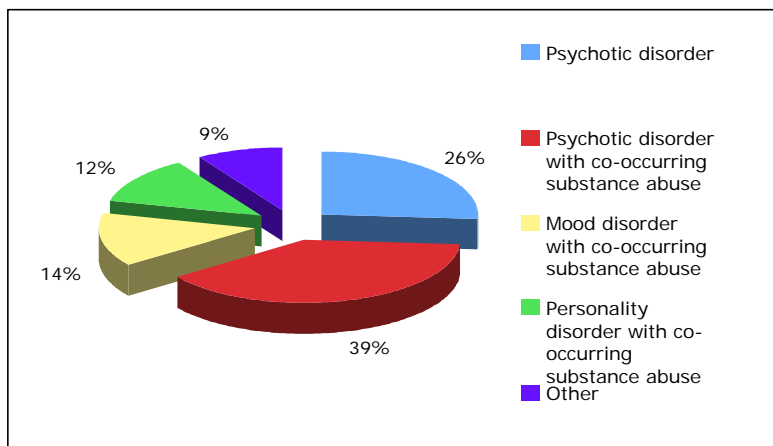
Table 1.0 Length of Time in BHC

Sample	Minimum Time in BHC	Maximum Time in BHC	Mean Time in BHC
Graduates (n=29)	358 days (.98 years)	3.8 years	2 years
Non-graduates (n=33)	15 days (.04 years)	3 years	282 days (.77 years)
Entire sample w/ active clients (n=94)	15 days (.04 years)	4 years	1.7 years

(1) <u>Research question #1</u>: How does the annual BHC operating cost compare to the costs of program outcomes? How does this relationship change over time?

The annual costs of operating the BHC are compared to the costs of two specific program outcomes (recidivism and mental health treatment). Annual program operating costs include court session costs, staff costs, costs associated with the number of days on probation while in the program, and the cost of time spent in jail while the defendant waited for housing and treatment after BHC acceptance. A pre-post design was used to determine the costs/savings associated with BHC program outcomes. Outcome costs include criminal justice and mental health treatment costs, as the primary goal of BHC is to link participants to treatment and reduce recidivism. Criminal justice costs include cost per arrest, police booking, jail booking, days spent in jail, days on probation, and cost per court case adjudicated in traditional court. Mental health treatment costs consist of any treatment service billed for by San Francisco's Department of Public Health. The average criminal justice and mental health treatment costs per BHC participant in the year prior to BHC entry is compared to the average criminal justice and mental health treatment costs per BHC participant in the first, second, and third years following BHC entry.

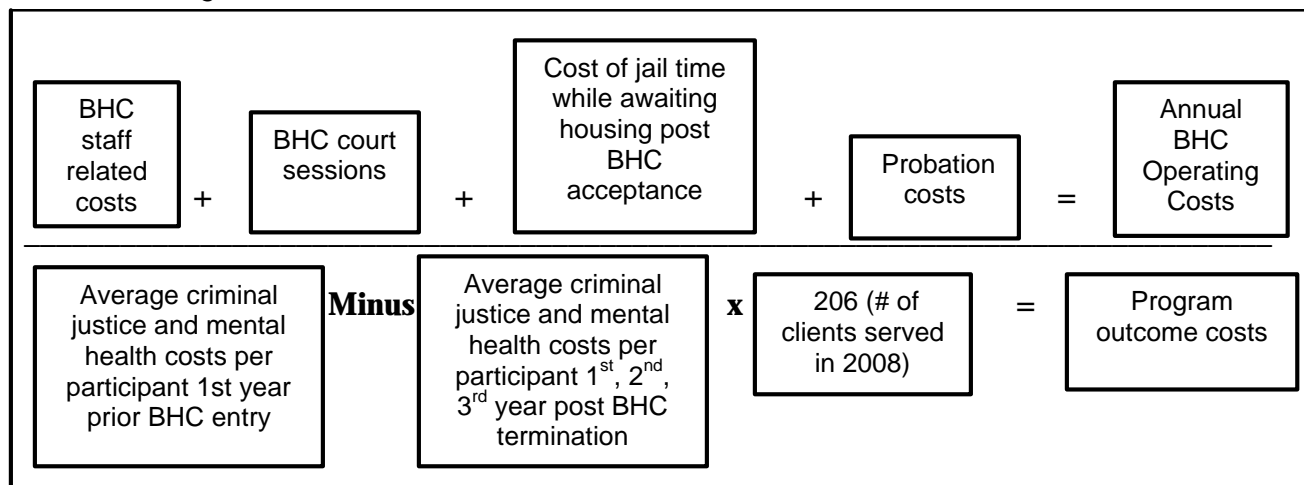*Table 1.1 Program Cost/Outcome Ratio*

Table 1.2 BHC Administrative Costs by Agency

Agency	Annual staff related costs	Annual BHC court session costs	Agency total
Superior Court	$163,922	$16,050	$179,972
Public Defender	$230,959	$19,240	$250,199
District Attorney	$188,515	$13,104	$201,619
Probation	$134,717	$4,527	$139,244
JPS Admin Costs	$29,399	$7,747	$37,146
JPS Client Services	$279,217	n/a	$279,217
Citywide	$24,415	$8,508	$32,923
Total	$1,051,144	$69,176	**$1,120,320**

Table 1.3 BHC Program Activity Costs

Program Activity	Average # per person	Average # of clients served in a year	Unit activity cost	Total
Probation Days	40	206	$5.31	$43,754
Jail days	43	206	$150	$1,328,700
Mental health treatment	n/a	206	$33,598	$6,921,188

Total Annual Program Cost: $2,492,774   Total Program Cost (w/ mental health tx): $9,413,962

In the subsequent cost analysis ratios the annual program operating costs does not include mental health treatment costs for several reasons; 1) it was not possible to decipher which mental health services were accessed as a result of participating in the BHC, making the annual figure an over estimate of costs; 2) the main goal of the BHC is to connect participants to treatment, not to directly provide these services. The costs associated with connecting participants to treatment is captured in BHC staff costs; 3) mental health services are provided by several different community based agencies and many of the services are paid by MediCal; 4) mental health treatment costs were not included in the RAND study's calculation of an MHC program cost. In summary, although the BHC works closely with mental health service providers, including mental health treatment costs would create an over-inclusive total program cost.

Criminal Justice and Mental Health Treatment Outcomes:

Figure 1.5 illustrates that BHC clients were becoming more involved in the criminal justice system over the two years prior entering the program. In the first year following BHC entry there is a sharp decline in court cases and arrests compared to the first year prior. This decline continues from one to two years post BHC but to a lesser degree, most likely because in the first year post BHC many are still in the program and receiving a high level of support and supervision. After a year many may no longer be in the program and may not be receiving the same level of support in the community

without the supervision of the court.   In the second year post 38% of participants had re-offended and 68% had experienced fewer arrests when compared to the first year prior program entry.

Figure 1.5
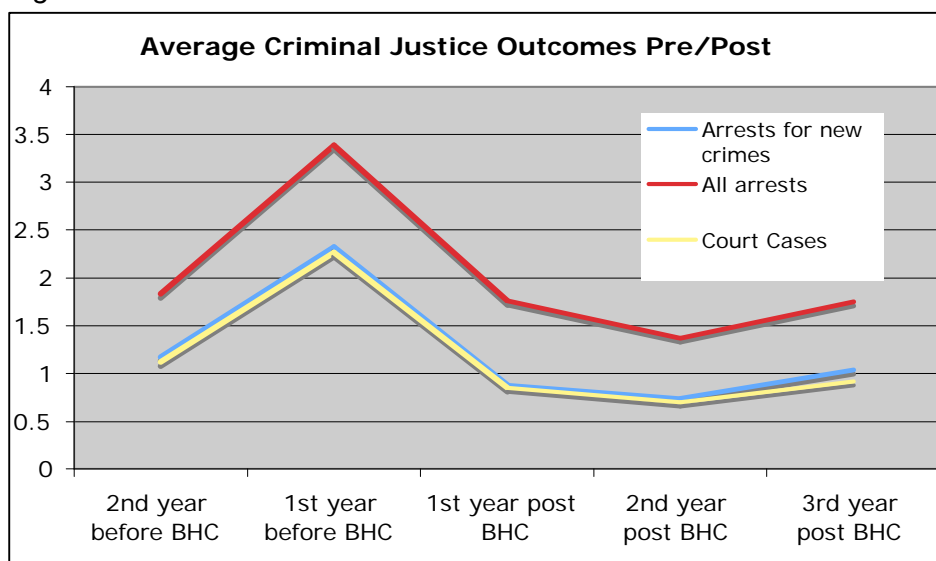
Average Criminal Justice Outcomes Pre/Post

Figure 1.5 also illustrates that BHC clients continue to be arrested less and have fewer court cases in the third year post BHC entry compared to the year prior program entry. However, the average number of arrests and court cases increases from the second to third year post. This suggests that if the program is indeed responsible for lowering rates of arrests and court cases, the effects of the program are not as strong three years after clients were originally accepted. Perhaps once clients are no longer being judicially supervised they become less compliant with their treatment plans, become more ill, and act in ways that require a response from law enforcement. Another possible explanation is that the services available to clients while in the program are no longer available once clients have been terminated from the BHC. In the third year post BHC 40% of clients had re-offended, but 75% experienced fewer arrests when compared to the first year prior program entry. As compared to the first year pre BHC the average number of arrests for new crimes committed in the third year post BHC decreased by 57%, all arrests decreased by 47%, and the number of court cases decreased by 60%.

Figure 1.6 illustrates the county jail booking patterns of those involved in the BHC. By plotting the total number of bookings the sample group incurred in the two years before BHC entry it is clear that over time these individuals were becoming more deeply involved in the criminal justice system. During the first year post program entry BHC participants experienced a 43.5% decrease in bookings compared to the first year prior BHC entry. There is also a significant decrease in bookings from the first year prior BHC to the second year post BHC.

However, Figure 1.6 also illustrates that the average number of jail bookings in the first year post is similar to the average bookings in the second year prior to entering the BHC. It is unclear whether the average number of bookings would have continued to rise after the first year prior program entry if clients had not entered the program or if bookings would have decreased regardless of the BHC intervention (regression to the mean). Although there continues to be a reduction in bookings in the third year post program entry compared to the first year prior entry, the average number of bookings increases from the second to the third year post BHC.
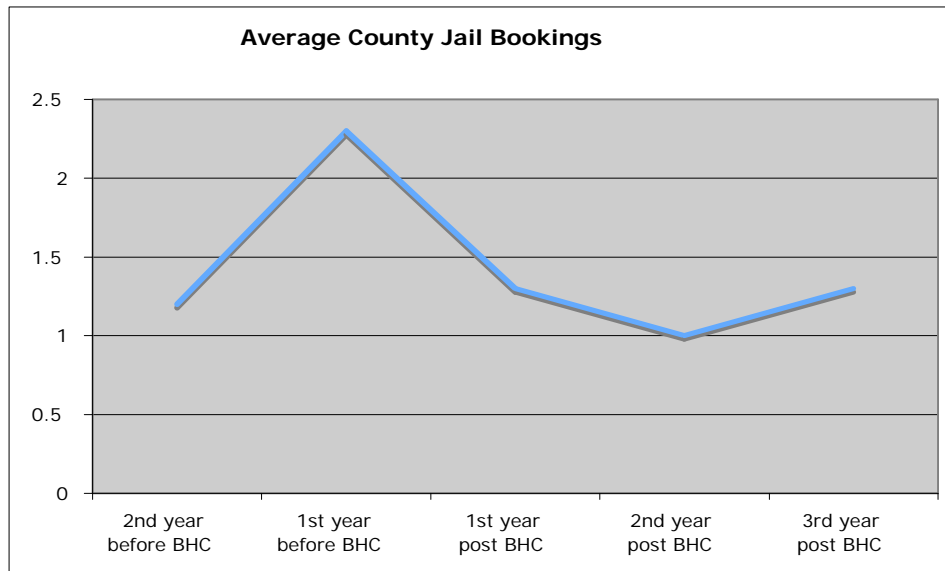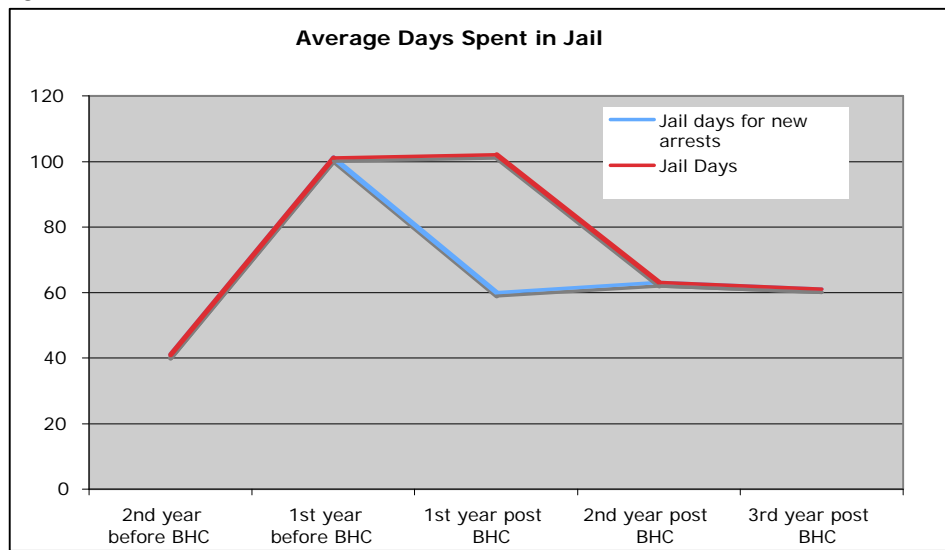
Figure 1.6

Figure 1.7

Figure 1.7 displays the average number of days BHC participants spent in jail before and after program entry. Similar to the booking and arrest data, the average number of days spent in jail increased from the second to the first year prior BHC entry. BHC clients do not experience a decrease in jail days during the first year post BHC entry because once clients are accepted into the BHC they have to remain in custody until a treatment plan is established that includes stable housing. However, when the number of days spent in jail as result of a new arrest are analyzed, BHC clients experience a significant decrease in jail days in each year post BHC compared to the year prior BHC.

When compared to the first year prior entering BHC, average jail days decrease by 41% (excluding time waiting for housing) in the first year post entry, by 38% in the second year post, and by 40% in the third year post program entry. However, the average number of jail days in each year post

program entry is higher than the average number of days in the second year before entering BHC. Again this finding raises the question of how or if this trajectory would change without the BHC intervention (would average days in jail have continued to rise without the BHC program? Or would the average have dropped regardless?).

The average days on probation was separately analyzed for the entire sample and for those who were on probation in the year before entry. Those who were on probation in the year before entry (n=29) experienced fewer average days on probation in the year following BHC, although changes in probation were not statistically significant (Figure 1.8). For those who were not on probation in the year prior (n=65), only five were put on probation in the first year following program entry, and three additional participants were put on probation in the second year following BHC entry. In conclusion, probation is not strongly influenced by the BHC program.
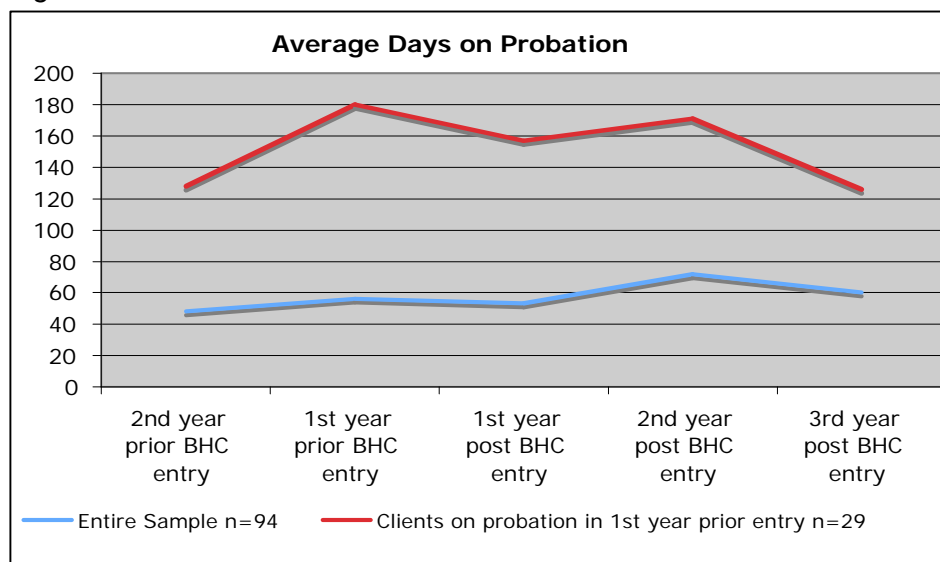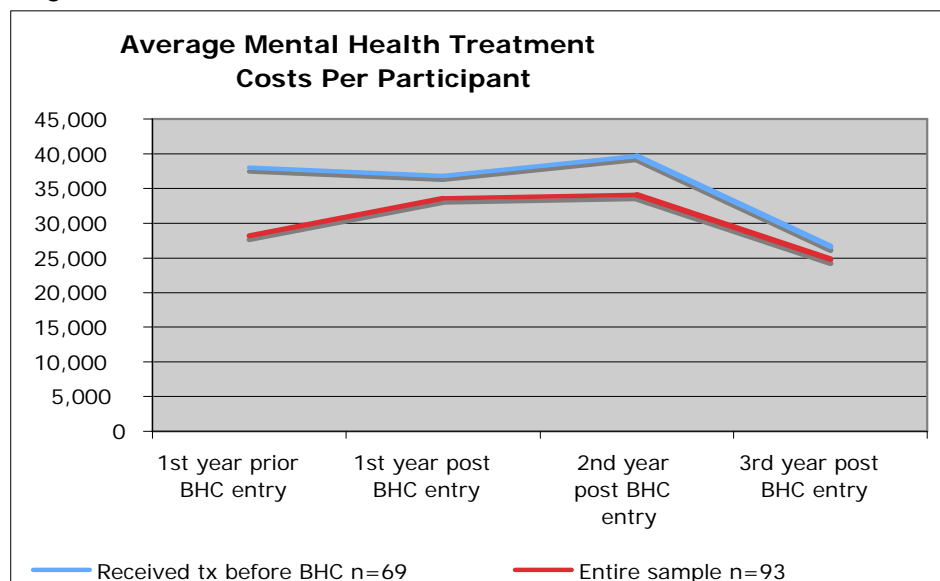
Figure 1.8

Figure 1.9

The average mental health treatment costs per participant increase from $28,241 in the first year pre BHC entry to $33,598 in the first year post. The average cost continues to increase from the first to second year post entry ($34,122) and then decreases in the third year post entry to $24,814 per participant (Figure 1.9). Although not statistically significant, this pattern is expected since many were not receiving any treatment before program entry and/or were entering the program at an acute clinical moment. In fact, when participants who did not receive treatment in the year prior program entry (n=24) are excluded from the analysis, the average mental health cost per participant slightly decreases from the first year prior entering BHC to the first year post. The 24 participants who did not receive prior mental health treatment are included in the following analyses in order to report the true costs and savings associated with the entire sample. The decrease in costs in the third year post program entry could indicate that these clients required less services or less costly services (i.e. hospitalizations). However, this decrease could also indicate that these clients are not receiving the level of care needed. This pattern is something to explore further since many criminal justice outcomes such as arrests and jail bookings begin to rise in the third year post, suggesting a relationship between the mental health treatment received and involvement in the criminal justice system.

BHC Cost Savings:

The following table (1.4) reports the average criminal justice costs incurred per participant by year. Days spent in jail while waiting for housing were not included since they were included in the annual BHC operating costs. Police booking costs were calculated for each arrest. When compared to the first year prior program entry, the average annual criminal justice cost per client reduces by $10,576 in the first year post program entry, by $10,465 in the second year, and by $10,019 in the third year post program entry. Table 1.5 illustrates the total average savings per offender including mental health treatment costs. In summary, the total average cost per participant (including criminal justice and mental health treatment costs) in the first year post program entry is $5,219 less than the average cost in the first year prior BHC. The average cost per participant reduces by $4,584 in the second year and by $13,446 in the third year post program entry compared to the first year prior program entry (Table 1.5)

Table 1.4 Average Criminal Justice Cost Per BHC Client Pre v. Post BHC Entry

Event	Unit Cost	Avg. # events per person 1 yr pre	Avg. cost per person 1 yr pre	Avg. # events per person 1 yr post	Avg. cost per person 1 yr post	Avg. # events per person 2 yr post	Avg. cost per person 2 yr post	Avg. # events per person 3 yr post	Avg. cost per person 3 yr post
Arrest	$191.48	2.3	$444	.88	$169	.74	$142	1.04	$199
Police Booking	$202.76	2.3	$466	.88	$178	.74	$150	1.04	$211
Jail Booking	$195.00	2.3	$449	1.3	$254	1	$195	1.29	$252
Jail Days	$150.00	101.2	$15,180	59.8	$8,970	63.1	$9,465	61.69	$9,254
Court Case	$2,476.89	2.3	$5,697	.85	$2,105	.70	$1,734	.92	$2,279
Probation	$5.31	56	$297	53	$281	72	$382	60	$319
Total			$22,533		$11,957		$12,068		$12,514

Table 1.5 Average Savings Per Offender Pre/Post BHC Entry

	Criminal Justice Cost Per Offender	Mental Health Treatment Cost Per Offender	Total	Savings Per Offender (total subtracted from average cost in 1st year prior BHC
1st year *prior* BHC	$22,533	$28,241	$50,774	n/a
1st year post BHC	$11,957	$33,598	$45,555	$5,219
2nd year post BHC	$12,068	$34,122	$46,190	$4,584
3rd year post BHC	$12,514	$24,814	$37,328	$13,446

Program Outcome Savings (Table 1.6): To calculate the criminal justice and mental health treatment savings/costs per year, the average criminal justice and mental health treatment cost per person for the year prior program entry is subtracted from the average cost per person of the year being analyzed and multiplied by the number of clients seen in a year (206). These figures do not include BHC operating costs.

Table 1.6 Program Outcome Savings

	1st Year Post BHC	2nd Year Post BHC	3rd Year Post BHC
Criminal Justice Savings	$2,178,656	$2,155,790	$2,063,914
Mental Health Treatment Savings	-$1,103,542	-$1,211,486	$705,962
Total Savings	$1,075,114	$944,304	$2,769,876

Program Operating Cost/Outcome Savings Ratio (Figure 2.0): To calculate program cost/savings ratios the annual program operating cost is compared to the savings associated with an annual cohort (206) of clients over a three-year period (Table 1.6).

Figure 2.0

1st Year Post BHC

A) Ratio of BHC Operating Cost to Criminal Justice Savings

$2,492,774 (annual program cost)
$2,178,656 (criminal justice savings)   → **Total net costs: $314,118**

Ratio=1.14:1 (for every $1.14 invested in BHC, one dollar is saved in reduced criminal justice costs).

B) Ratio of BHC Operating Cost to Criminal Justice Savings & Mental Health Tx Costs

$2,492,774 (annual program cost)
$1,075,144 (criminal justice & treatment savings/costs)   → **Total net costs: $1,417,630**

Ratio=2.32:1 (for every $2.32 invested in BHC, one dollar is saved in reduced criminal justice costs).

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2nd Year Post BHC

A) <u>Ratio of BHC Operating Cost to Criminal Justice Savings</u>

<u>$2,492,774</u> (annual program cost)
$2,155,790 (criminal justice savings)   →**Total net costs: $336,984**

Ratio=1.16:1 (for every $1.16 invested in BHC, one dollar is saved in reduced criminal justice costs).

B) <u>Ratio of BHC Operating Cost to Criminal Justice Savings & Mental Health Tx Costs</u>

<u>$2,492,774</u> (annual program cost
$944,304 (criminal justice & treatment savings/costs)   → **Total net costs: $1,548,470**

Ratio=2.64:1 (for every $2.64 invested in BHC, one dollar is saved in reduced criminal justice costs).

3rd Year Post BHC

A) <u>Ratio of BHC Operating Cost to Criminal Justice Savings</u>

<u>$2,492,774</u> (annual program cost)
$2,063,914 (criminal justice savings)   →**Total net costs: $428,860**

Ratio=1.21:1 (for every $1.21 invested in BHC, one dollar is saved in reduced criminal justice costs).

B) <u>Ratio of BHC Operating Cost to Criminal Justice & Mental Health Tx Savings</u>

<u>$2,492,774 </u>(annual program cost)
$2,769,876 (criminal justice & treatment savings/costs) →**Total net *savings*: $277,102**

Ratio=0.90:1 (for every 90 cents invested in BHC, one dollar is saved in reduced criminal justice and mental health costs).

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In summary, the total criminal justice savings offset increases in mental health treatment costs in the first and second years post BHC entry. In the third year post BHC entry there are significant net savings ($2,769,876) as a result of reductions in both criminal justice transactions and mental health treatment costs (Table 1.6). Figure 2.0 compares the BHC operating costs to the savings/costs associated with changes in criminal justice transactions and mental health treatment utilization before and after program entry. When mental health treatment costs are excluded from the analyses the ratio of operating cost to outcome savings is relatively small (between $1.14-$1.21 invested in the BHC program for every $1.00 saved in outcomes). Although the inclusion of mental health treatment costs increases the ratios and overall net costs in the first two years post BHC entry, the BHC operating cost is completely offset in the third year as a result of a significant decrease in mental health treatment costs. In summary, the savings associated with a BHC client cohort do not offset program costs until three years after the cohort entered the program.

(2) <u>Research question #2</u>: What factors help predict future re-arrests?

As evidenced in the previous cost analysis, BHC clients do experience a significant decrease in arrests, which is associated with criminal justice savings. It is therefore useful for the BHC program to understand the factors that predict the number of re-arrests incurred post program entry. Three separate multiple regression[1] models were created to determine the factors influencing the number of arrests in the first, second, and third year post BHC entry. Possible predictors included in the analysis were age, graduation status, program status, entered BHC more than once, severity of index offense, number of arrests in the year prior to BHC entry, number of arrests in first year post BHC entry, and number of arrests during the second year post BHC entry (depending on the model used). Possible indicators were included based on the literature and conversations with BHC staff.

<u>Model I-Factors that predict arrests during the 1st year post BHC entry</u>
Both the number of *arrests in 1st year prior entry* and *time in program* were significant predictors of the number of arrests incurred in the first year post BHC entry, regardless of a participant's age, graduation status, program status, whether he/she entered BHC more than once, and the index criminal charge. An increase in arrests in the year prior BHC entry by one results in an increase in arrests in the year post entry by .297 (roughly one third). An increase in time in the program by one day results in an increase in arrests in the first year post by .001. The number of arrests incurred in the first year pre BHC has a stronger impact on the number of arrests in the first year post entry than time spent in the program.

<u>Model II-Factors that predict arrests during the 2nd year post BHC entry</u>
In this analysis *entered BHC more than once*, *graduation status* and *arrests in 1st year post entry* all were significant predictors of the number of arrests incurred in the second year post program entry. As the number of arrests in the first year post BHC increase by one, the number of arrests in the second year post program entry increase by .233. If a client has entered into the program more than once the number of arrests in the second year post increase by 1.92. If a client graduates from the program the number of arrests in the second year post entry decrease by .676. Whether or not a client entered the program more than once has a stronger impact on the number of arrests incurred in the second year than both graduation status and the number of arrests incurred in the first year post BHC entry.

<u>Model III-Factors that predict arrests during the 3rd year post BHC entry</u>
Because the number of clients in the sample with third year data is significantly smaller (n=47), fewer possible predictors were included in the analysis (*graduation status, program status, arrests in 1st year post BHC* and *arrests in 2nd year post BHC)*. This analysis found the number of arrests in the second year post to have a significant impact on the number of arrests incurred in the third year post BHC entry. As the number of arrests in the second year post BHC entry increase by one, the number of arrests in the third year post BHC entry increase by .202.

<u>Discussion:</u>
The first model illustrates that a criminal history does predict a criminal future in that the number of previous arrests predicts future arrests. The amount of time spent in the program was a significant

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[1] Multiple regression is a statistical analysis that predicts the value of one variable based on its relationship to two or more predictor/independent variables.

but weak predictor of arrests in the first year post BHC program entry; an increase in the length of time in the program by one day increases the number of arrests post BHC entry by only .001, which indicates a negligible effect. However, it was hypothesized that as the number of days in the program increased the number of arrests would decrease. The unexpected positive association between time and number of arrests could be a logical reflection of the fact that as more time passes there are more opportunities for arrest. Graduation status does not significantly affect arrests in the first year post program entry most likely because many who do graduate take more than a year to do so. However, graduation does have a significant impact on the number of arrests in the second year post entry in the direction one would suspect (as one moves from not graduated to graduated, there is a reduction in arrests by .676). If a client entered into the program more than once, their number of arrests in the second year post program entry increase by almost two. This finding could suggest that the program is less effective, in terms of reducing arrests, for those who have entered the program more than once. However, there is also a possibility that the relationship is reversed, meaning the number of arrests predicts whether a client re-enters the program since one can only re-enter the BHC if he/she has been re-arrested.

Again in model two and three it is demonstrated that the number of arrests experienced in the year before affects the number of arrests incurred in the following year. This makes the case for early program intervention especially considering that 67% of those who were not re-arrested in the first year following BHC entry only experienced one arrest in the year prior to BHC, whereas 35% had been arrested more than once. Because the number of arrests in years prior is a significant predictor of arrests incurred in later years, and because the BHC has a significant impact on reducing arrests, the earlier someone is referred to BHC once they become initially involved in the criminal justice system the fewer arrests they are likely to experience post BHC entry. Graduation status no longer has a significant impact on the number of arrests experienced in the third year post BHC. This could suggest that as time goes by the program has less of an effect on criminal justice outcomes, which is also reflected in Figures 1.5 and 1.6 where the average number of criminal justice interactions increases in the third year post program entry. Finally, participant characteristics such as age and severity of offense were not significant predictors of the number of arrests incurred in the first, second, or third year post program entry. This issue is further explored in the following analysis.

(3) <u>Research Question #3a:</u> *Who Has Higher Odds of Re-offending?*

Many mental health courts continue to target those who have committed misdemeanor level crimes as opposed to those with more serious charges, not because the literature supports this practice, but because it is more politically feasible. However, according to the literature those with more severe charges are retained in jail diversion programs longer and are more engaged (Rempel & DeStefano, 2001). It is therefore hypothesized that those who are more engaged in the program (those with more severe charges) have lower odds of re-offending.

Similarly, although not a political agenda, BHC staff and the literature have suggested that those who are younger and/or with co-occurring disorders are not as successful in mental health programs and therefore may have higher odds of re-offending (Cosden et al., 2003; Ferguson, Hornby, & Zeller, 2008; Rempel & DeStefano, 2001). A study conducted by Rempel and DeStefano reports that being younger was a significant predictor of dropping out of drug court (2001). It is hypothesized that participants who are older have struggled with their illness longer and may have cycled in and out of the criminal justice system more than younger participants, making them more amenable to treatment and at lower odds of re-offending. Co-occurring disorders have been associated with

negative outcomes within the MHC context. A study conducted by Cosden et al. found that MHC participants with co-occurring disorders did not experience fewer arrests post program participation unlike their mentally ill counterparts without substance abuse disorders (2003). Furthermore, the co-occurring disorder population is often regarded as harder to serve because of a lack of integrated community treatment (mental health and substance abuse) services. Therefore, it was hypothesized that those with co-occurring disorders would have higher odds of re-offending.

Three logistic regression[2] models were created to determine significant predictors of the odds of re-offending post program entry. Possible predictors included *severity of criminal charge (misdemeanor, felony, violent felony), graduation status, program status (currently active vs. inactive), age, diagnosis* (*co-occurring disorder vs. without co-occurring disorder*), and *occurrence of re-arrest* in the previous year.

Model I- Predictors of re-offending in the 1st year post BHC entry

All clients in the sample had been arrested in the year prior BHC entry as that is how they were originally admitted into the program. Therefore, whether a client incurred one or more arrests was used as a possible predictor in place of the occurrence of an arrest in the year prior entry. The only significant predictor for re-offending in the first year post BHC entry was whether the client was arrested more than once in the previous year. This model reports that those who are arrested more than once in the year prior program entry have 3.2 times higher odds of re-offending in the first year post BHC than those who were arrested only once.

Model II-Predictors of re-offending in the 2nd year post BHC entry

This model reports that significant predictors of re-offending in the second year post BHC entry are graduation status and being re-arrested in the first year post program entry. The odds of re-offending in the second year post program entry decrease by 83.6% for those who graduate from the program. The odds of re-offending in the second year post for those who re-offend in the first year post program entry are 8.4 times the odds of those who do not re-offend in the first year post BHC.

Model III-Predictors of re-offending in the 3rd year post BHC entry

This model reports that the only significant predictor of re-offending in the third year post BHC entry is whether or not the client was still currently active in the program at the time the data was analyzed. The odds of re-offending in the third year post program entry for those who are still currently in the program is 5 times the odds of those who are not currently in the program (about 4 times the odds when controlling for the event of re-offending in the first and second years).

Discussion:

The first model supports the findings from the previous multiple regression analysis in that the extent to which one was involved in the criminal justice system (i.e. number of arrests) before program entry is an indicator of the odds of re-offending in the first year post program entry. This highlights the benefits of targeting first time offenders or those who have recently entered the system. Again, similar to the previous analysis, graduation is a strong predictor of success as the odds of being re-arrested are reduced by about 84% for those who graduate from the program.

In all three models, age, severity of offense, and diagnosis were not significant predictors of the odds of re-offending. In other words, those with felonies and violent felonies do not have higher odds of

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[2] Logistic regression is a statistical analysis that helps predict the odds of an event happening (dependent variable) based on its relationship with two or more predictor/independent variables.

re-offending when compared to those who committed misdemeanors. Although some MHCs continue to exclude those with felonies, there is no evidence from this analysis that those with misdemeanors are at less odds of committing another crime after program entry. The BHC should continue to target those with more severe criminal charges especially since offenders with more severe charges are often associated with higher costs when their cases are processed in the traditional court system as they are likely to spend more time in jail and may have lengthier court cases. Because the severity of offense did not have a significant impact on the number of arrests incurred post program entry felons experience similar savings as those who committed misdemeanors, but would have cost the system more on the front end had their cases been processed in the traditional criminal court system.

Similarly, there are no significant differences in the odds of re-offending for those who are younger versus older or those who have a co-occurring disorder versus those who do not. Because the literature claims that this population is harder to serve, the fact that those with a co-occurring disorder in the BHC do not have higher odds of re-offending can be interpreted as evidence that the BHC is effectively serving this population. However, there is a possibility for type II error (when a significant relationship between variables, such as re-offending and diagnosis, is not detected) because of a small sample size. If in fact there is no relationship, it would be useful for future research to identify the program features responsible for this outcome so that these practices can be adopted by other MHCs, considering approximately 50% of those with a mental illness also have a co-occurring substance abuse disorder (NAMI, 2009).

Finally, the finding that the odds of re-offending in the third year post program entry for those who are still currently in the program are about 4 times the odds of those not in the program should be further considered by BHC staff. Many of those who are currently in the program have remained in the program since their original program entry date (i.e. did not re-enter at a later date) meaning these clients have been in the program for a significantly longer period of time than those not currently in the program. Because it is not possible to identify a causal relationship between variables from this analysis it is unclear if clients are re-offending in the third year post program entry *because* they have been in the program longer than most (i.e. feel hopeless about completing the program etc.), or that these clients have higher odds of re-offending for other unidentified reasons and remain in the program longer than most because the BHC is protecting them from the sentence that awaits them if they are unsuccessfully terminated from the BHC. Regardless, the court is encouraged to review policies related to clients who continue to re-offend and to policies regarding the length of time a client may stay in the program. Furthermore, it has been recommended by the Council of State Governments Justice Center, Criminal Justice/Mental Health Consensus Project, a national non-profit that provides administrative support to mental health courts nation wide, that MHC participation should not exceed the length of time the participant would have been under judicial supervision had their case been adjudicated in traditional court. However, in practice this is difficult to enforce since it may not be in the client's best interest to terminate them if their participation does exceed this recommended time frame.

 (3) Research Question #3b: *What factors predict program graduation?*

The previous analyses report that graduating from the BHC reduces the odds of re-offending and the number of arrests incurred post program entry. The following analysis was conducted in order to understand predictors of program graduation. Those who were still currently in the program were excluded from the analysis as they have not yet had the chance to graduate, leaving a sample of 62

participants. Possible predictors included *severity of index offense*, *age* , and *diagnosis*. Diagnosis was coded two different ways in order to be comparable with other studies that have analyzed the relationship between diagnosis and graduation status; categorically (psychotic disorder, psychotic disorder with substance abuse, mood disorder with substance abuse, personality disorder with substance abuse, and other); and as a dichotomous categorical variable (co-occurring disorder vs. without co-occurring disorder). The hypothesis for this model was that those with more severe criminal charges, older participants, and those without a co-occurring disorder, personality disorder, or mood disorder would have higher odds of graduating.

Two logistic regression models were run, each with a different coding of the diagnosis variable. Neither model reported significant predictors, concluding that the severity of the index offense, diagnosis, nor the age of the participant affects the odds of program graduation. Again however, there is a possibility for type II error (when a relationship between variables is denied when one really does exist) because of the small sample size.

Discussion:
Other studies have found that those with less severe offenses, co-occurring disorders, personality disorders, and bi-polar disorders had lower odds of graduating from MHCs (Ferguson, Hornby, & Zeller, 2008; Rempel & DeStefano, 2001). The fact that these findings do not hold true in San Francisco's BHC suggests that the BHC is successful at giving those previously hypothesized as harder to serve an equal chance at success. This might be attributable to the BHC staff and their efforts, the program structure, or the availability and quality of treatment services in the community. Although it is unclear from this study what program factors predict graduation, the BHC should continue to focus their efforts on retaining and graduating participants by effectively using sanctions and incentives, linking participants to effective services in the community, and other methods staff believe to be effective.

Program Recommendations:

- Continue to target those who have been hypothesized as harder to serve (those with felonies, younger offenders, and those with co-occurring disorders) since this population does not have higher odds of re-offending or being unsuccessfully terminated from the program.
- Consider also targeting first time offenders or those who have recently entered the system since the number of previous arrests is positively associated with number of future arrests. Furthermore, those with one arrest in the year prior program entry have lower odds of re-offending post program entry than those who have more than one arrest. Targeting first time offenders may also increase program savings.
- Explore ways to expedite the discharge of BHC clients from jail once they have been accepted in the program in order to reduce program costs and decrease time spent incarcerated.
- Explore ways to ensure that participants continue to receive the level of care needed once they are no longer in the program. This may help to sustain a reduction in criminal justice interactions.
- Continue to find ways to retain participants and enable program graduation since those who graduate have lower odds of re-offending.
- Review policies regarding the maximum length of time a client may stay in the BHC, as well as protocols for clients who continue to re-offend after three or more years in the program.

Study Limitations:

The relatively small sample size increases the possibility of denying a significant relationship among variables. For example, if there was a larger sample the logistic regression analysis might have detected a relationship between the severity of the index offense and the odds of graduating. Analyses that excluded participants who are currently in the program are even more vulnerable to this type of error. In any longitudinal study it is possible that changes in participants that occur during and post intervention can be attributed to the maturation of participants or to changes in the external environment such as new legislation. Therefore, although significant savings and relationships between graduation status and arrests were reported it is not possible to determine if the BHC actually *caused* these outcomes. In order to detect a causal relationship a comparison group is needed and clients must be randomly assigned (a true experimental design) to either the BHC or treatment/adjudication as usual. Future research should explore the relationships between various program elements (i.e. legal coercion, relationship between Judge and client, and availability of community services) and program outcomes.

Various outcome variables such as increased employment and cash benefits received were not tracked and undoubtedly affect the program cost/program outcome ratio. Similarly, this study analyzes costs to the criminal justice and mental health systems and does not consider the costs incurred or saved to the tax payer such as savings related to reduced crime and increase in employment or costs related to an increase in cash benefits such as SSI. Finally, because one of the goals of the program is to connect participants to treatment, which is associated with an increase in costs, cost savings is not necessarily the best indicator of a successful MHC program. Furthermore, a problem with any cost analysis is that not all outcomes are measured in monetary values. Although it was outside of the scope of this study, various mental health outcomes are important to MHC programs, such as reduced symptoms, psychosocial functioning, and increased support networks.

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