HARRIS COUNTY HOSPITAL DISTRICT

COMMUNITY BEHAVIORAL HEALTH PROGRAM

2005-06 EVALUATION REPORT

by

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Introduction

The Harris County Hospital District (HCHD) operates Ben Taub General Hospital (BTGH), Lyndon B. Johnson General Hospital, Quentin Mease Community Hospital, 11 community health centers, seven school-based clinics, a dental center, a program of healthcare for the homeless, and a center for patients with HIV/AIDS (Thomas Street Community Health Center). The District serves about 300,000 individuals a year, most of whom are low-income uninsured or underinsured. Until 2004, all psychiatric services were provided at the District's only psychiatric outpatient clinic (except those at Thomas Street), which is located at BTGH. Realizing that the waiting period for visits at BTGH was unreasonable and that psychiatric services should be integrated with primary care in the community a new system of integrated care was proposed.

In July 2004, HCHD launched a pilot project and placed a psychiatrist in three community health centers. The tasks of the psychiatrist included seeing scheduled patients at the centers and providing curbside consultations to primary care physicians with the goal of furthering psychiatric interventions by primary care physicians themselves. Based on the success of the pilot, the HCHD Community Behavioral Health Program (CBHP) was created in July 2005 with financial support from HCHD and the Hogg Foundation for Mental Health, and in collaboration with Baylor College of Medicine and The University of Texas Medical School at Houston. A director was hired and several new psychiatrists and master's level psychotherapists were hired to staff the community centers. In addition, several psychiatrists at BTGH were

relocated into the community centers. The project coordinated with the HCHD Social Work Department for social work services at each community center, the Houston Council on Alcohol and Drugs, and the HCHD Insight Project, a government-funded substance abuse screening program. Medical students, nursing students, psychology interns, primary care residents, and psychiatry residents also joined the CBHP team.

As stated in the Hogg Foundation Grant Proposal, the overall goal of the CBHP is to redirect services from outpatient specialty clinics and the emergency center at BTGH to primary care settings to meet a constantly growing need for behavioral healthcare in a cost-effective manner. The CBHP team of psychiatrists, psychotherapists, substance abuse counselors, residents, and students are now in all 11 HCHD community health centers, five partner centers, the center for the homeless, and two school-based clinics. At each site there are psychiatric services, individual and group psychotherapy services, and social work services. Future plans call for providing similar services in the five additional HCHD school-based clinics.

Program Background and Objectives

In Harris County, the demand for publicly provided behavioral health services is increasing while the availability of such services has remained the same or decreased. In their 2004 report, the Harris County Mental Health Needs Council estimated that approximately 20,000 Harris County children and 84,000 adults with severe emotional and mental illness problems needed public mental health services in 2003. However, the local Mental Health and Mental Retardation Authority (MHMRA) served only 8,800 adults and 1,700 children. One consequence of the imbalance has been an increase in the crisis services provided by the MHMRA NeuroPsychiatric Center and Harris County Hospital District's (HCHD) Ben Taub

Psychiatric Emergency Center, both of whom have been forced to periodically close in recent years due to overcrowding.

Because primary care providers are often the first point of entry into the system for patients with primary or secondary behavioral health problems, a system of community-based integrated behavioral health and primary care services was proposed to expand the availability of behavioral health care in the face of scarce resources. The goal of co-located behavioral health specialists with primary care providers in clinics and schools is to enhance early identification and intervention for behavioral health problems and to diminish reliance on expensive crisis services.

The first objective of the CBHP is to establish behavioral healthcare teams to provide services at HCHD community clinics, private community clinics, and school-based clinics. Each team is to include an on-site, behavioral health specialist for each site with a rotating psychiatrist accompanied by a psychiatric and/or family practice resident and medical students from Baylor College of Medicine and the UT Houston Medical School. The psychiatrist and residents/students are to support the on-site specialist as well as the primary care staff at predetermined times each week. Each site is to host the psychiatrist and residents no less than one half-day per week with allocation determined by need.

Another objective of CBHP is to provide specific behavioral health services including screening and assessment of children and their families for behavioral health issues; family psycho educational measures; counseling; consultation to primary care providers (PCPs) to enhance their ability in this area; case management; direct, specialist-level intervention through medication management when clinically appropriate; and liaison services. The target population for these proposed services consists of a high percentage of ethnic/racial minorities, low-income

persons (income below 200% of the federal poverty level), and the uninsured/underinsured that make up the HCHD population. All services are to be provided in a culturally sensitive manner with appropriate protections for patient information and quality assurance.

A third objective of the CBHP is to develop and provide educational services for primary care providers and staff on behavioral health issues. CBHP's education focuses on furthering the scope of psychiatric and behavioral interventions by the community primary care team. In order to accomplish this, psychiatrists and behavioral health therapists are co-located with primary care providers at each center, curbside consultations while patients are being seen are encouraged, and a variety of educational materials and programs have been developed and implemented.

The final objective of the CBHP is to develop the capacity to conduct clinical and program evaluation research in order to document the implementation and impact of services provided in the program, and address research questions related to the quality and accessibility of care provided.

In this report, we describe the objectives, methods, and results of the evaluation of the first complete year of operation of the CBHP.

Evaluation Objectives

The primary objectives of the evaluation correspond to the program's proposed objectives:

1) Describe the major resources and features of the program that have been implemented;

2) Describe the services provided and the characteristics of patients served; and

3) Determine whether there has been a positive impact on access, health, provider satisfaction, and costs.

A secondary objective is to describe program areas in need of improvement and to develop recommendations for a more complete evaluation of the program in the future. The evaluation framework that has guided the research is presented in Appendix 1.

Methods

To describe the resources and features of the program, the number and type of CBHP staff at each service site were determined based on program documents. Resource measures include the number and availability of clinical staff. The educational aspects of the program are also described including the number and type of video/audio lectures and materials for the medical staff.

The amount and type of behavioral health services provided and the characteristics of patients served were determined from encounter information included in the CBHP integrated database. We were able to determine the total number of patients seen, number seen by provider type, new patients, and patients seen for mental health and/or substance abuse. We were also able to measure the number and type of counseling sessions provided to individuals, groups, families, total sessions, mental health and/or substance abuse sessions, and the number of sessions per patient. Information on the characteristics of patients included demographic data on gender, age, and race/ethnicity, and behavioral health data as measured by the total and domain scores on the BASIS-24.

To determine the initial impact of the program on the behavioral health condition of patients we examined improved symptoms and problems over time in the overall and domain scores of patients on the BASIS-24. The 24 questions of the BASIS-24 measure a broad range of domains of psychiatric and substance abuse symptoms and functioning including: depression and functioning, relationships, self-harm, emotional lability, psychosis, and substance abuse. Typically, the BASIS-24 is given at admission and discharge for hospital- or residential-based episodes of care, and at intake/initiation of treatment and periodically thereafter in partial hospital or ambulatory care settings. The responses to questions indicate how patients feel before and after receiving care. The responses are scored using a weighted average algorithm that gives an overall score and scores for each of the six domains.

Collection of BASIS-24 data began in October, 2005. The BHS began to give the scale to each client at their initial appointment and then during each monthly follow-up visit. In December, psychiatrists also began to administer the BASIS-24 to their patients at the initial visit and at monthly follow up visits. Baseline and follow-up scores were compared for each patient to determine changes in behavioral health status.

To determine the initial impact of the program on providers we conducted a survey of provider satisfaction and opinion about how the program was working. A provider survey was developed that contained questions on provider understanding/ comfort with the integrated model, and opinion of the effectiveness of educational materials (how many have you seen, did you learn anything new, are you more comfortable maintaining behavioral health patients?), etc. Different versions of the questionnaire were administered to behavioral health specialists and psychiatrists (Appendix 2) and primary care physicians (Appendix 3).

The questionnaire included two main parts. The first part, designed in a form of Likert scales, was to capture provider opinions on: 1) CBHP's impact on accessibility to behavioral health services of the needy; 2) impact on general quality of primary care; 3) actual interaction between psychiatrists and primary care physicians; 4) the time flexibility that allows both primary care physicians and psychiatrists to serve patients conveniently; and 5) common vision and understanding of CBHP. Provider satisfaction was represented by a Likert scale with 1 the most negative (e.g. strongly disagree) and five the most positive (strongly agree). Number two, three, four were disagree, not sure and agree respectively. We set the cut point for mean score of the Likert scale at 3.5, which meant that if the mean score is 3.5 or higher, the opinion is considered positive and if less than 3.5, the opinion is considered relatively negative. The responses to each question were grouped by the content areas described above.

The second part of the provider satisfaction survey was open-ended questions where providers expressed their overall satisfaction with the program, and their comments on strengths and weaknesses and recommendations for improving the program.

The initial impact of the program on HCHD service patterns was also assessed by examining individual pre-post data on the use and cost of psychiatric services and aggregate data on the distribution of psychiatric services provided in community versus hospital-based settings. The data were obtained from the HCHD database (using medical records of the approximate 3,000 users, examining usage from July 2005 through May 2006).

We examined the hypothesis that access to psychiatric service was enhanced by the availability of CBHP services in the community health centers. Individuals in the HCHD system receiving psychiatric care should receive more care once they are referred to the CBHP and this increase will be evident in both psychiatric visits and charges. To see if service patterns appear

to be changing, we examined 260 individuals who were referred to CBHP sometime during the 11-month study period and had received psychiatric services both before and after referral. A mirror analysis was performed comparing the equivalent number of months of service pre and post-referral to test the hypothesis that the use of psychiatric services had risen.

One of the objectives of CBHP is to shift the setting of psychiatric services from hospital-based to the community health centers. To examine whether implementation of CBHP resulted in a shift of psychiatric care within HCHD, trends in the settings (hospital-based versus community centers) of visits and charges for psychiatric services were obtained over the period July '05 to April '06.

Results

Program Resources and Features

As was stated in the initial Hogg Foundation Grant Proposal, a Project Director, four Licensed Medical Social Workers (LMSW's) and one psychiatrist were hired using the Hogg Foundation Grant funds. These resources were placed in four of HCHD's community health centers and three private community clinics (Good Neighbor Healthcare Center, Houston Community Health Center, and the Asian American Family Services Center). An additional project coordinator, six LMSW's, and ten part-time psychiatrists were funded by HCHD to complement and expand upon the resources supported by the grant. With these resources the CBHP has been able to provide psychiatrists and behavioral health specialists (BHS) at all 11 HCHD community health centers, four private community clinics (the three listed above and Denver Harbor) that serve low-income uninsured, and two school-based clinic throughout its first year. The project also has a steering committee of approximately 15 members. The resources that have been acquired by the CBHP and its capacity for service delivery have exceeded the original plan.

The program is seeing patients with psychiatric and substance abuse problems at each of the sites. The BHS are available on a full-time basis at each site. A psychiatrist is at each site

for one-half day at least two days a week. Some of the patients seen by the BHS and psychiatrists are referred from the primary care physicians and some are by self-referral. The program is also furthering the scope of psychiatric services by primary care physicians through curbside consultations while they are seeing patients. Once patients that are referred are psychiatrically stabilized they are discharged from the psychiatrist's service and scheduled for follow-up maintenance care with their primary care physicians.

CBHP's educational features focus on furthering the scope of psychiatric and behavioral interventions by the community primary care team. In addition to the educational aspects of the interaction between co-located staff, CBHP implemented small group learning and case conferences for primary care physicians at the centers. Abbott Laboratories sponsored a series of four formal teleconference lectures on major psychiatric topics. The lectures focused on disease recognition and on how to use psychiatric medications; each lecture was televised from the Baylor Primary Care Teleconference Studio to primary care physicians at the community health centers. Primary care physicians were also educated about psychotherapy referrals.

Currently, with support from Abbott Laboratories, the CBHP is producing 250 DVDs and audiotapes of each lecture for individual review by primary care physicians. At this point, CBHP has passed out a copy of the first duplicated tape to all primary care physicians. Tapes 2, 3, and 4 are being duplicated. CBHP plans to pass out copies of those lectures to all primary care physicians within the next four weeks. In order to educate primary care center staff about mental illness in general and on the needs of psychiatric patients as well, the CBHP taped seven formal lectures geared towards center staff on key psychiatric issues. Each center has started to play a copy of one of the CBHP staff lectures during their monthly staff meetings. CBHP training efforts also focused on rotations for primary care and psychiatry residents, psychology interns, and medical as well as nursing students. Trainees came to the centers and evaluated patients with the psychiatrists. They also participated in the small group learning and case conferences at the centers.

The CBHP plan did not specify the amount or type of educational services to be provided by the CBHP so this component could not be formally evaluated. However, provider satisfaction with this aspect of the program is addressed in a later section of this report as part of the provider satisfaction survey.

Services Provided and the Characteristics of Patients Served

A total of 2,895 clients were seen from July 2005 through May 2006. Psychiatrists saw 801 patients, 1,824 patients were seen by BHS and 269 patients were seen by both a psychiatrist and a BHS. The total number of clients classified as mental health patients was 2,363, the total number of clients classified as substance abuse patients was 6, and the total number of clients classified as both was 336. 34 patients were referred to Project InSight (HCHD substance abuse screening grant, federally funded) and 12 were referred to the Council on Alcohol & Drugs Houston.

A total of 2075 female patients and 820 male patients have been seen. The clients' ages are as follows: 18 were infant to age 3 years, 57 were ages four to six years, 137 were ages seven to 12 years, 169 were ages 13 to 18 years, 2376 were ages 19 to 64 and 128 were over 65 years. Three clients were Alaskan Native, three were American Indian, 835 were African American. 58 were Asian, 754 were Caucasian, 1225 were Hispanic and 17 were "other." Fifty-five of the clients were classified as Hurricane Katrina victims and 10 were Hurricane Rita victims.

Since the beginning of the program in July 2005, a total of 7,392 counseling sessions have been conducted. These figures can be further broken down into 1,696 psychiatry sessions, 3,349 individual counseling sessions, 562 group sessions, 830 family sessions and 95 phone sessions. Clients that participated in these sessions averaged two individual sessions per client, two family sessions per client, and 3 group sessions per client.

The CBHP plan did not specify the services to be provided so this component could not be formally evaluated compared to what was expected. However, provider satisfaction with their caseload is addressed by the provider satisfaction survey and the results are presented in a later section of this report.

Initial Impact on Patient Health, Provider Satisfaction, and Patterns of Service

Patient Health

Through May 2006, initial BASIS-24 data and at least one follow-up were available for 416 patients. This number represents 72% of the 579 patients who were eligible to receive the follow-up BASIS-24. That is, there are 579 patients who had at least two visits during the study

period, with the second visit at least 30 days after the first visit thus making them eligible for the initial and follow up BASIS-24 surveys. This low number may be attributed to several factors; patients under age 18 are not eligible for the BASIS-24, some of the patients are family members seen in sessions with the patients and do not receive the BASIS-24, and there were over 1,200 initial BASIS-24's waiting to be paired with a second (follow up) BASIS-24 at the end of the study period.

To check whether the sample of 416 is representative of the entire patient sample of 2895, the demographics of the sample and the total were compared (Table 1). The sample and the total group were closely matched for age and gender, but not for ethnicity. The gender mode for both groups was female. The age mode for the test sample was 48 and for the entire group was 49. The ethnic mode for the sample group was Black and for the entire group was Hispanic.

Table 1. Characteristics of Sample Compared to All Patients

	BASIS-24 Sample	All Patients
Gender		
Percent Males	20%	27%
Percent Females	80%	73%
Average Age	48	49
Race/Ethnicity		
Black	41.5%	30.1%
Hispanic	23.5%	40.2%
White	32.4%	27.5%
Asian	0.7%	2%
Amer Indian or Alaskan Nat	0.2%	0.2%
Pacific Islander	0.2%	0.0%
Other	1.4%	0.0%

In comparisons of the scores for each patient, statistically significant improvement was detected in terms of the overall score $t(414)= 8.583$, $p <.000$ and four out of six domain scores: reduced depression $t(415)= 8.438$, $p <.000$, self harm $t(415)= 3.651$, $p <.000$, emotional labiality $t(415)= 6.004$, $p <.000$, substance abuse $t(414)= 2.875$, $p <.000$, and overall.

The average percent change in scores between baseline and follow-up was 26% improvement in the overall score, 30% in the depression sub-score, 75% in the self harm sub-score, 37% in the emotional labile sub-score, and 72% in the substance abuse sub-score. Although clinically significant differences have not been defined for the BASIS-24, the effect sizes we found for the overall score and depression subscale were medium effect sizes for dependent groups. The effect sizes for self harm, emotional labile, and substance abuse subscales were relatively small. These results must be interpreted in the context that this was a convenience sample and that the sample was not similar to the clinical population in regard to ethnicity.

Provider Satisfaction

One hundred questionnaires were distributed and 45 were returned (return rate = 45%) of which 11 were from BHS, seven from psychiatrists, and 27 from primary care physicians at both UT Houston Medical School and Baylor College of Medicine.

A summary of the mean overall scores comparing the behavioral health staff (BHS and psychiatrists) and primary care physicians on each aspect of the program (described in the methods section) are shown in Table 2.

Table 2. Mean Provider Satisfaction Scores by Area and Provider Type

	BHS + Psychiatrists					PCPs				
Variables	Obs	**Mean**	Std. Dev.	Min	Max	Obs	**Mean**	Std. Dev.	Min	Max
Accessibility	18	**4.58**	0.38	3.8	5	27	**4.18**	0.57	2.8	5
General quality improvement of PHC	18	**4.68**	0.32	4	5	27	**4.53**	0.40	3.8	5
Common understanding about CBHP	18	**4.69**	0.40	4	5	27	**4.10**	0.59	3	5
Time flexibility	18	**3.25**	1.33	1	5	27	**3.78**	0.89	2	5
Interaction between PCPs	18	**4.00**	0.60	3	5	24	**3.92**	0.52	3	5

and BH					
PCP education	17	**3.34**	0.83	1	4.75

Accessibility. Both BHS and PCPs strongly agreed that the CBHP has helped improve the accessibility to behavioral health services for those who need it. Eighty-nine percent (34/38 respondents) believe that prior to CBHP patients had very limited or no access to behavioral health services (Table 3). At the same time, 87% (33/38) agreed that the CBHP enabled patients who have behavioral health problems to access appropriate care at community health centers and reduced the likelihood of using the emergency room (mean score = 4.4). It is noteworthy that the CBHP helped reduce the length of time to access needed behavioral healthcare within appropriate time frames, especially for those with critical behavioral health problems. These results suggest that providers feel the CBHP has initially achieved its objective of increasing accessibility to behavioral health services and reducing emergency center visits, in other words, re-directing patient flow to community health centers where behavioral health services are more convenient and easier to access.

Table 3. Mean Provider Satisfaction Scores on Accessibility by Provider Type

	Combined		**BHS + Psychiatrists**		**PCPs**	
Variable	Obs	**Mean scores**	Obs	**Mean scores**	Obs	**Mean scores**
Poor accessibility prior to CBHP	45	**4.42**	18	**4.56**	27	**4.33**
Improved accessibility by CBHP	45	**4.47**	18	**4.78**	27	**4.26**
CBHP reduced ER visit	45	**4.40**	18	**4.61**	27	**4.26**
CBHP reduced length of time for accessing BH services	45	**4.16**	18	**4.44**	27	**3.96**
CBHP helps improve access care in appropriate time frame	45	**4.24**	18	**4.50**	27	**4.07**

Quality of care. It is also believed that the CBHP has improved the general quality of primary care at community health centers with the offer of additional behavioral health services

(mean scores are 4.76 and 4.53 in table 2). All respondents affirmed that behavioral health services are necessary and helped improve the quality of primary care (Table 4). Undoubtedly, the additional behavioral health services provided through the CBHP are deemed important in improving quality of care by providers.

Table 4. Mean Provider Satisfaction Scores on Quality of Care by Provider Type

	BHS + Psychiatrists		PCPs	
Variable	Obs	**Mean scores**	Obs	**Mean scores**
BHC necessary for PHC	18	**4.94**	27	**4.70**
BHC improve adherence to treatment	18	**4.89**	27	**4.67**
BHC offered by CBHP improve general quality of PHC	18	**4.72**	27	**4.44**
CBHP enhances PCPs' ability to provide BHC	18	**4.44**	27	**4.52**
BHC enhances quality of the clinics	18	**4.39**	27	**4.30**

Interaction between PCPs and BH physicians. The purpose of questions on interactions between the primary care physician and the behavioral health providers was to explore if they fully understand each other's roles and work comfortably together to provide integrated behavioral healthcare at community health centers. Results are positive with mean scores of 4 and 3.91 for behavioral health and primary care providers respectively (Table 5). However, it must be noted that nearly a half of responded primary care physicians (12/27) have not been completely aware of objectives and roles of the CBHP's members, which showed in a mean score of 3.54, close to the cutting point of a negative response. Also, the low score in the "effective referral" question implies that interaction between behavioral health providers and primary care physicians has not been as smooth as expected. In other words, behavioral health providers have not been fully comfortable in referring stabilized patients to primary care physicians while primary care physicians are likely to believe that they can handle those cases.

Table 5. Mean Provider Satisfaction Scores on Interaction by Provider Type

	BHS + Psychiatrists		PCPs	
Variable	Obs	**Mean**	Obs	**Mean**
Effective referral between PCPs and BH Therapists	18	**3.94**	27	**4.26**
Comfortable with referring patients to PCPs/BH Therapists	18	**4.00**	25	**4.16**
Awareness of CBHP protocol, roles and functions of members	18	**4.06**	24	**3.54**

Time Flexibility and Staffing. Time flexibility is the only negative response that constrains both behavioral health providers and primary care physicians. Seventy three percent (8/11) of BHS and 28% of psychiatrists reported that their working schedule does not allow them to see all the referred and appointed patients as well as to consult effectively and appropriately with the primary care physicians (Table 6). Ten primary care physicians were not satisfied with the timeline and completeness of the psychiatrists and BHS' responses to their referrals and requests for consultations. This result is in line with comments by 100% of behavioral health providers who explicitly pointed out that more staff are needed. Likewise, 87% (13/15) of primary care physicians who answered the specific question suggested an increase in availability and accessibility of psychiatrists was needed (the remaining 12 respondents did not answer).

Table 6: Mean Provider Satisfaction Scores on Time Flexibility by Provider Type

Variable	Obs	**Mean**	Std. Dev.	Min	Max
Time flexibility of BH physicians	18	**3.25**	1.33	1	5
Time flexibility of PCPs	27	**3.78**	0.89	2	5

CBHP Educational Activity and Materials. Educational activities were not originally proposed in the Hogg Foundation Grant application. These activities were proposed and carried out when HCHD stepped in and provided more resources. The purpose of educational activities was to improve the primary care physicians capacity to provide behavioral healthcare services through on-going training by watching educational videos or by on-site consultation. Twenty-

seven primary care physicians responded and more than half (14/27) have not seen the video or received any educational materials (Table 7). Of the 17 valid answers, the mean score for primary care physician education was 3.34, which is an area for improvement.

Table 7: Mean Provider Satisfaction Scores on Effectiveness of PCP Education Activities and Materials

Variable	Obs	**Mean**	Std. Dev.	Min	Max
PCP education	17	**3.34**	0.83	1	4.75

Common vision, understanding of CBHP, and overall satisfaction with the Program. In general, all providers are positive about being members of the CBHP with a total mean score of 4.25 (tables 8 and 9). This result is strengthened by statements in open-ended questions where overall satisfaction with the program was rated highly by 8 out of 11 psychiatrists who were extremely satisfied and three who were satisfied (overall satisfaction rate = 100%). The overall satisfaction rate among primary care physicians was 87.5% (out of 16 answers, 14 were extremely satisfied; 5 were satisfied and 2 were unsatisfied because of lack or unavailability of psychiatrists at their centers).

Table 8. Mean Provider Satisfaction Scores on Common Vision and Understanding by Provider Type

	Combined		**BHS + Psychiatrists**		**PCPs**	
Variable	Obs	**Mean**	Obs	**Mean**	Obs	**Mean**
Share sense of responsibility	45	**4.40**	18	**4.78**	27	**4.15**
Common treatment goals	45	**4.40**	18	**4.67**	27	**4.22**
Understanding of roles and responsibility	45	**4.33**	18	**4.67**	27	**4.11**
Formal and informal interaction	45	**4.20**	18	**4.72**	27	**3.85**
Share knowledge	45	**4.38**	18	**4.78**	27	**4.11**
Common vision/philosophy of CBHP					27	**4.19**
Total (combined score)	45	**4.31**	18	**4.50**	27	**4.10**

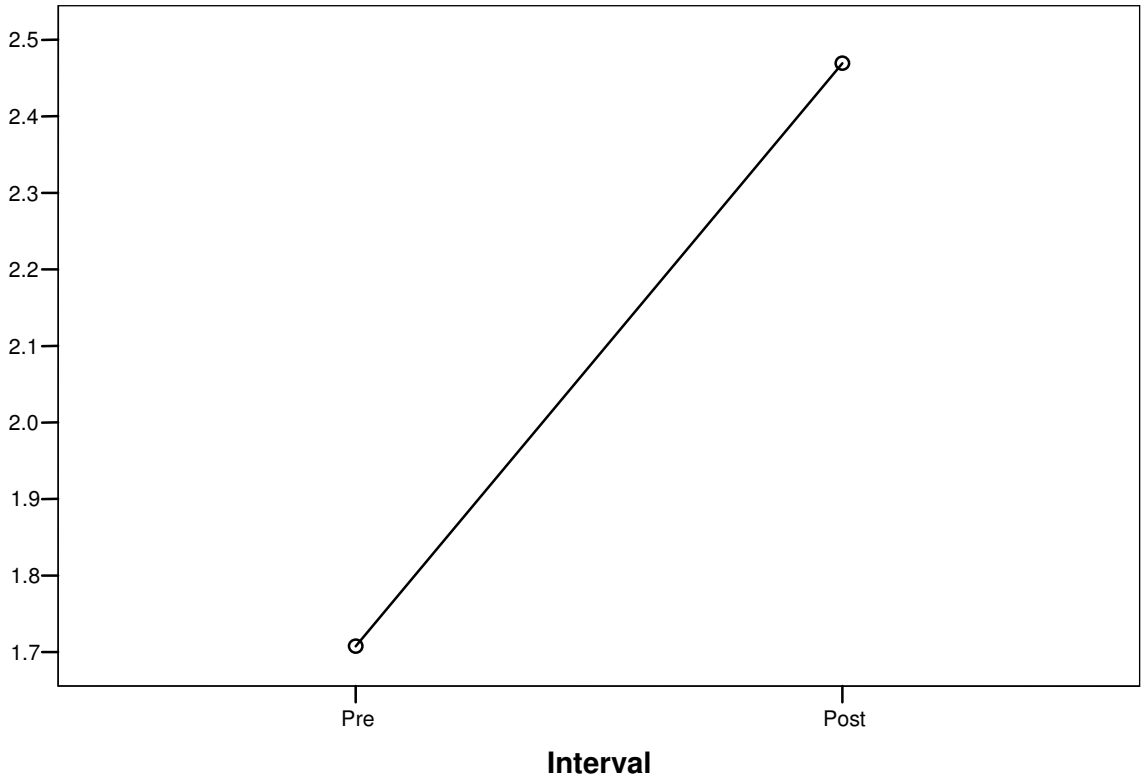
Table 9. Overall Satisfaction Rate by Provider Type

	No of response	Extremely satisfied	Satisfied	Neutral	Not satisfied	Overall satisfaction
BHS + Psychiatrists	18	13	5	0	0	100%
PCPs	16	9	5	0	2	87.5%

Service Patterns

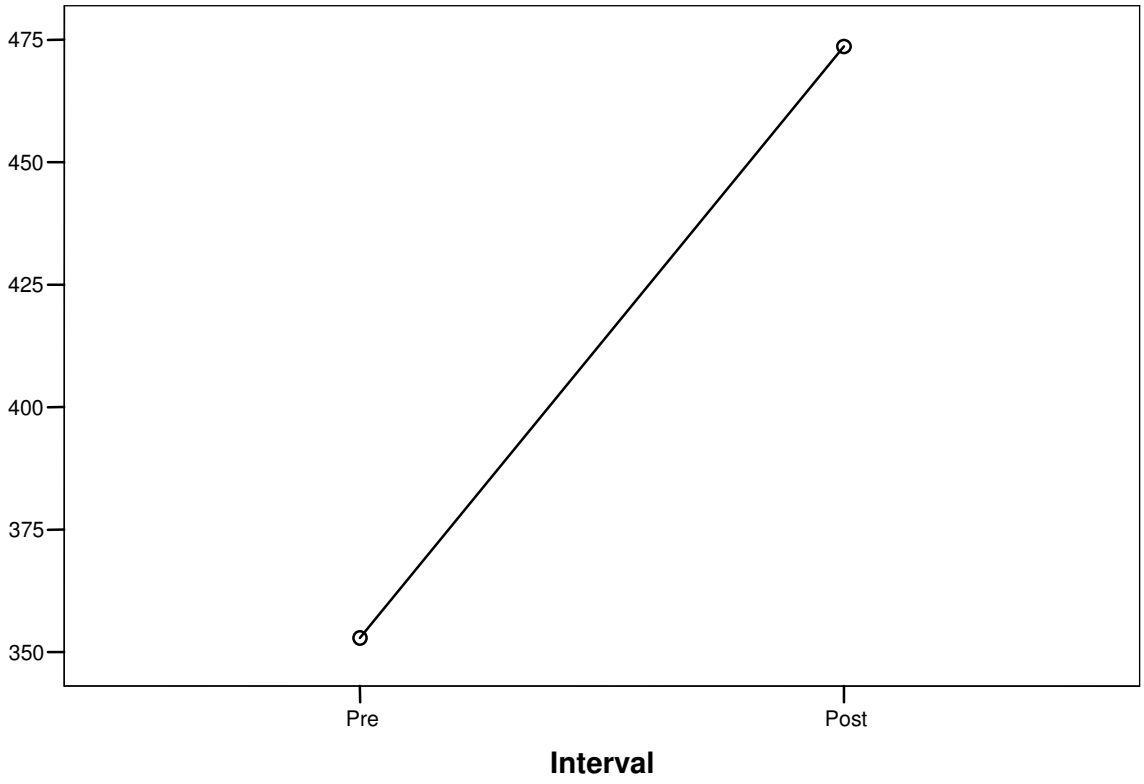
Examination of the chart below (Chart 1) reveals that there was an increase in the number of visits from the pre- to the post-referral periods (1.7 to 2.5) for the 260 patients who were referred to the CBHP during the study period and received psychiatric care in both the pre- and post-period. Analysis of variance revealed significant differences between the pre and post levels(F=44.317, p<.001).

Chart 1. Estimated Mean Number of Visits



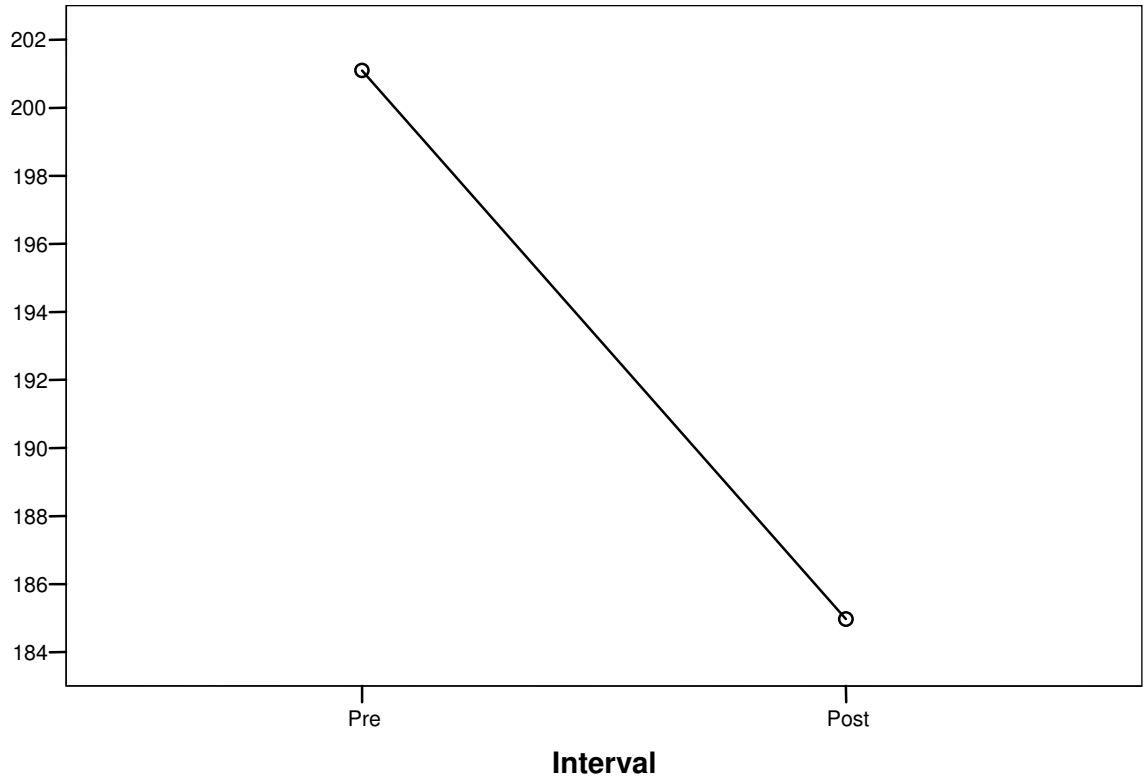
As in the preceding analysis, visual examination of the means reveals an increase in total charges following referral as well from $353 in the pre-referral period to $473 in the post-period. Again, analysis of variance produced values indicating significant differences between the pre- and post- measurement intervals (F=9.228, p<.003 with 1).

Chart 2. Estimated Total Charges ($)



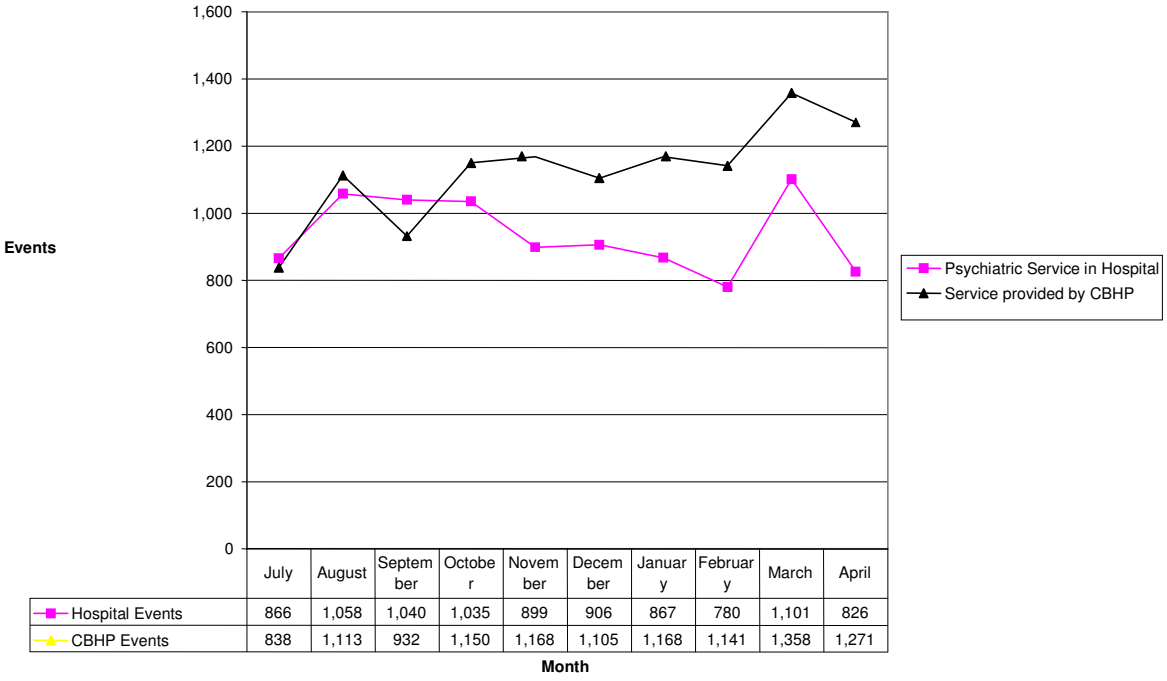
The average cost per visit in each treatment interval was evaluated through analysis of variance (Chart 3). Visual inspection of charted means shows a mild, but non-significant reduction in per-visit charges from $201 to 185$. This test failed to produce values indicating significant differences between the pre- and post-levels (F=0.641, p=.424).

Chart 3. Estimated Means of Charges per Visit ($)



A graph of total psychiatric visits presented below (Chart 4) shows that by October ’05 the majority of psychiatric services within HCHD were being provided by the CBHP in the community health centers.

Chart 4. Psychiatric Services by Program



	July	August	September	October	November	December	January	February	March	April
Hospital Events	866	1,058	1,040	1,035	899	906	867	780	1,101	826
CBHP Events	838	1,113	932	1,150	1,168	1,105	1,168	1,141	1,358	1,271

Month

A slightly different pattern was observed for total charges (Chart 5). The CBHP program billed at increasing monthly rates throughout the program period but remained below the sum of psychiatric charges that were hospital-based. The trend shows the increase in charges in the community health centers for psychiatric services compared to hospital-based charges.

Chart 5. Charges for Psychiatric Services

	July	August	September	October	November	December	January	February	March	April
All Other Clinic Charges	239,82	297,24	285,68	277,08	223,95	224,96	264,78	208,26	286,18	205,04
CHP Charges	121,36	159,78	136,20	190,06	187,21	199,47	191,69	160,24	188,59	190,36

Month

Conclusion and Recommendations

The HCHD Community Behavioral Health Program has realized many of its implementation objectives and appears to already be having an impact on patient access, patient health, and behavioral health service patterns. Behavioral health resources have been placed throughout the HCHD system and in some partner clinics. A variety of diagnostic and treatment services have been provided to approximately 3,000 people, representing about 10% of the HCHD population. Results indicate that patients with psychiatric problems are receiving more extensive psychiatric care following referral to CBHP. This increase in the number of visits has resulted in higher total treatment charges for psychiatric services, though this was accomplished without increasing the average charge per visit. Providers are generally satisfied with the program, and believe strongly that access to and quality of behavioral health services has

improved. Finally, based on a convenience sample of patients with baseline and follow-up data, the behavioral health condition of patients is improving.

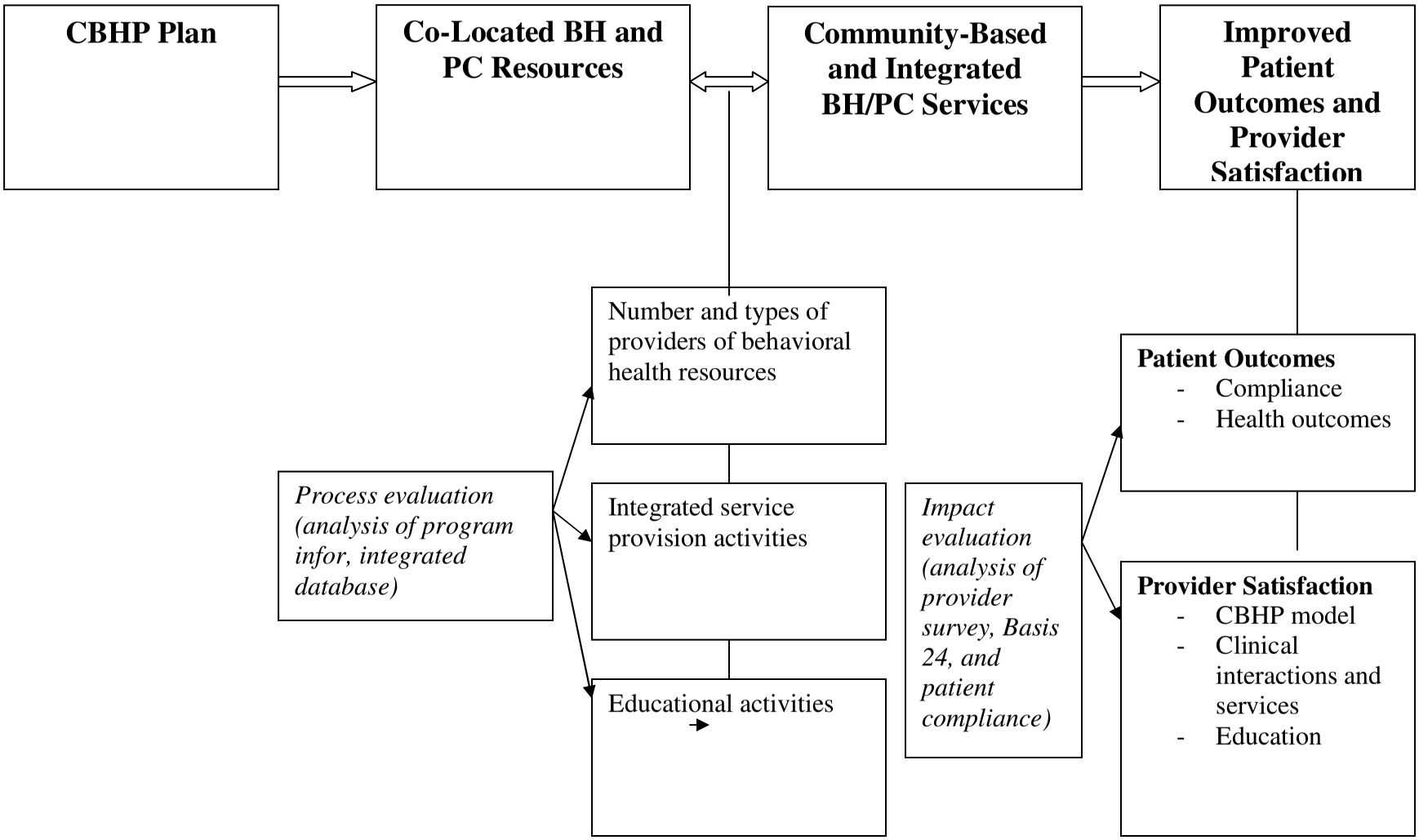
While there appears to be effective implementation of the major aspects of the program at this early stage, there are some shortfalls as well. With respect to provider satisfaction, three concerns were identified. The majority of behavioral health providers reported that their work schedules do no allow them to see all the referred and appointed patients and consult effectively and appropriately with the primary care physicians. The educational materials and programs do not appear to be getting to all the primary care physicians and their ratings of the usefulness of the educational activities were not very favorable. Nearly half of the primary care physicians are not completely aware of the objectives and roles of the CBHP team members and the majority are not satisfied with the responsiveness of the behavioral health staff to their referrals and requests for consultations. Likewise, the behavioral health staff is not fully comfortable in referring stabilized patient to primary care physicians.

On balance, the CBHP appears to have been very successful in the first year of full implementation and has already begun to realize its potential impact on access, health, and service delivery. Its potential for impact will be enhanced with improvements in staffing patterns, more widespread distribution and use of its educational activities, and continued work on the interaction among the behavioral health staff and primary care physicians.

Future evaluations of program impact on patients should systematically use methods to increase the likelihood of obtaining a random sample of patients that is representative of the population. In the current study, an attempt was made to obtain measures on all patients at entry and at follow-up. Such effort was difficult given that clinicians had high levels of clinical work and little time to do standardized assessments. Future measurement should also employ the use

of independent evaluators. Although self-assessment instruments lessen the need for independent evaluators, even self assessment administration requires support to ensure accurate and complete data collection. Resources for program evaluation need to include support to design a sampling plan and to pay for independent evaluators

Appendix 1. Evaluation Framework



Appendix 2: Behavioral Health Specialist and Psychiatrist Survey

June 2006

Dear CBHP Provider,

You are invited to participate in the Community Behavioral Health Program (CBHP) survey conducted by the University of Texas School of Public Health. Approximately 20 to 30 providers will be asked to complete this survey regarding their impressions of the CBHP. It will take approximately 10 minutes to complete the questionnaire.

Your participation in this study is completely voluntary. If you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions of the CBHP in order to evaluate the effectiveness of the program after its first year and to recommend improvements. All answers will remain anonymous, and will be reported only in the aggregate to program leaders and outside funders. Please write legibly.

If you have questions at any time about the survey or the procedures, you may contact Margaux Krempetz at (713) 500-9400 or by email at Margaux.H.Krempetz@uth.tmc.edu.

Thank you very much for your time and support.

		1 Strongly Disagree	2 Disagree	3 Not Sure	4 Agree	5 Strongly Agree
General						
1	The integration of behavioral healthcare (BHC) into primary care settings is necessary for effective primary care.	**1**	**2**	**3**	**4**	**5**
2	The integration of BHC and primary care can improve patient adherence to a treatment plan.	**1**	**2**	**3**	**4**	**5**
3	Prior to the commencement of the CBHP, patients had limited to no access to BHC.	**1**	**2**	**3**	**4**	**5**
4	The CBHP enables patients who have behavioral health (BH) problems to access appropriate care.	**1**	**2**	**3**	**4**	**5**
5	The CBHP reduces the likelihood that patients will require emergency room visits.	**1**	**2**	**3**	**4**	**5**
6	The CHBP has improved the quality of care for my patients.	**1**	**2**	**3**	**4**	**5**
7	The length of time between a PCP referral and a BH care visit has decreased with the CBHP.	**1**	**2**	**3**	**4**	**5**
8	The CBHP enables patients with critical BH problems to access care within an appropriate time frame.	**1**	**2**	**3**	**4**	**5**
9	The CBHP has enhanced the ability of PCPs to provide BHC.	**1**	**2**	**3**	**4**	**5**
Clinical Practices and Processes						
10	My schedule allows me the flexibility to see all referred, appointed and walk-in patients. and to participate in curbside consultations.	**1**	**2**	**3**	**4**	**5**
11	My schedule allows me the flexibility to participate in consultations with primary care physicians (PCPs) appropriately.	**1**	**2**	**3**	**4**	**5**
12	I feel that my consultations with (PCPs) enhances the quality of care in the clinics.	**1**	**2**	**3**	**4**	**5**

		1 Strongly Disagree	2 Disagree	3 Not Sure	4 Agree	5 Strongly Agree
The CBHP Clinical Practices (continued)						
13	PCP referrals and requests for consultations are complete, clear and concise.	**1**	**2**	**3**	**4**	**5**
14	As a CBHP team member, I feel comfortable referring BH patients to PCPs for their BHC.	**1**	**2**	**3**	**4**	**5**
15	I am aware of CBHP team member protocols which establish the service objectives and the roles and functions of the various members.	**1**	**2**	**3**	**4**	**5**
16	CBHP team members…:					
	a)…share a sense of responsibility for their patients.	**1**	**2**	**3**	**4**	**5**
	b)…have common treatment and outcomes goals for their patients.	**1**	**2**	**3**	**4**	**5**
	c)…have a clear understanding of each others' roles and abilities.	**1**	**2**	**3**	**4**	**5**
	d)…regularly have formal and informal interactions	**1**	**2**	**3**	**4**	**5**
	e)…share a knowledge base and sense of collective responsibility	**1**	**2**	**3**	**4**	**5**
	f)…share a common vision or philosophy of CBHP	**1**	**2**	**3**	**4**	**5**
	g)…experience flexibility in their role as providers.					

1. Please describe the general nature of your role as a CBHP team member.

_____
_____
_____

2. The vision or philosophy of the CBHP is: _____
_____
_____

3. Please comment on your overall satisfaction with the CBHP.

_____
_____

4. Please comment on the CBHP's strengths and weaknesses.

_____

_____

5. Please list any recommendations you have for improving the CBHP.

_____

_____

Thank you for your time.

Appendix 3: Primary Care Physician Survey

June 2006

Dear CBHP Provider,

You are invited to participate in the Community Behavioral Health Program (CBHP) survey conducted by the University of Texas School of Public Health. Approximately 40 providers will be asked to complete this survey regarding their impressions of the CBHP. It will take approximately 10 minutes to complete the questionnaire.

Your participation in this study is completely voluntary. If you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions of the CBHP in order to evaluate the effectiveness of the program after its first year and to recommend improvements. All answers will remain anonymous, and will be reported only in the aggregate to program leaders and outside funders. Please write legibly.

If you have questions at any time about the survey or the procedures, you may contact Thien Vu at (713) 500-9400 or by email at Thien.C.Vu@uth.tmc.edu.

Thank you very much for your time and support.

		1 Strongly Disagree	2 Disagree	3 Not Sure	4 Agree	5 Strongly Agree
General						
1	The integration of behavioral healthcare (BHC) into primary care settings is necessary for effective primary care.	**1**	**2**	**3**	**4**	**5**
2	The integration of BHC and primary care can improve patient adherence to a treatment plan.	**1**	**2**	**3**	**4**	**5**
3	Prior to the commencement of the CBHP, patients had limited to no access to BHC.	**1**	**2**	**3**	**4**	**5**
4	The CBHP enables patients who have behavioral health (BH) problems to access appropriate care.	**1**	**2**	**3**	**4**	**5**
5	The CBHP reduces the likelihood that patients will require emergency room visits.	**1**	**2**	**3**	**4**	**5**
6	The CHBP has improved the quality of care for my patients.	**1**	**2**	**3**	**4**	**5**
7	The length of time between a PCP referral and a BH care visit has decreased with the CBHP.	**1**	**2**	**3**	**4**	**5**
8	The CBHP enables patients with critical BH problems to access care within an appropriate time frame.	**1**	**2**	**3**	**4**	**5**
9	The CBHP has enhanced the ability of PCPs to provide BHC.	**1**	**2**	**3**	**4**	**5**
Clinical Practices and Processes						
10	I make use of curbside consultations with BH therapists and psychiatrists on a regular basis.	**1**	**2**	**3**	**4**	**5**
11	I am satisfied with the timeliness and completeness of the responses to my referrals and my requests for consultations.	**1**	**2**	**3**	**4**	**5**
12	I feel that the use of BH curbside consultations enhances the quality of primary care.	**1**	**2**	**3**	**4**	**5**

		1 Strongly Disagree	2 Disagree	3 Not Sure	4 Agree	5 Strongly Agree
Clinical Practices and Processes (continued)						
13	Within CBHP, psychiatrists are to refer stabilized patients to the PCP.	**1**	**2**	**3**	**4**	**5**
14	As a CBHP team member, I feel comfortable sharing the BHC of stabilized patients.	**1**	**2**	**3**	**4**	**5**
15	I am aware of CBHP team member protocols which establish the service objectives and the roles and functions of the various members	**1**	**2**	**3**	**4**	**5**
16	CBHP team members…:					
	a)…share a sense of responsibility for their patients.	**1**	**2**	**3**	**4**	**5**
	b)…have common treatment and outcomes goals for their patients.	**1**	**2**	**3**	**4**	**5**
	c)…have a clear understanding of each others' roles and abilities.	**1**	**2**	**3**	**4**	**5**
	d)…regularly have formal and informal interactions	**1**	**2**	**3**	**4**	**5**
	e)…share a knowledge base and sense of collective responsibility	**1**	**2**	**3**	**4**	**5**
	f)…share a common vision or philosophy of CBHP	**1**	**2**	**3**	**4**	**5**
	g)…experience flexibility in their role as providers.					
Provider Education						
17	The CBHP video lectures have increased my understanding of BH conditions and treatment.	**1**	**2**	**3**	**4**	**5**
18	Prior to watching the lectures, I generally felt comfortable providing care to patients with stabilized BH problems.	**1**	**2**	**3**	**4**	**5**
19	After watching the lectures, I feel more comfortable providing care to patients with BH problems.	**1**	**2**	**3**	**4**	**5**
20	After watching the lectures, I feel more comfortable prescribing medications for various BH problems.	**1**	**2**	**3**	**4**	**5**

Please answer the following questions:

1. List CBHP video lectures you have received.
_____

2. List the CBHP video lectures you have watched.
_____

3. Please describe how your knowledge and skills regarding BH could be further enhanced.
_____
_____
_____

4. Please describe the general nature of your role as a CBHP team member.
_____
_____
_____

5. The vision or philosophy of the CBHP is: _____
_____
_____

6. Please comment on your overall satisfaction with the CBHP.
_____
_____

7. Please comment on the CBHP's strengths and weaknesses.
_____
_____

8. Please list any recommendations you have for improving CBHP.
_____
_____

9. How long has it been since you completed your residency/fellowship? _____

10. Are you a physician at University of Texas Medical School or Baylor College of Medicine? (circle one)

University of Texas Medical School Baylor College of Medicine

The evaluation team is grateful to Dr. Jose Bayona and Dr. Tom Gavagan for their help in distributing the provider surveys to their primary care physicians.

Thank you for your time.