

**A Process and Outcome
Evaluation of Two Integrated
Behavioral Health Care Models:
People's Community Clinic and
Lone Star Circle of Care**

Year-Three/Final Report

Submitted to:



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Executive Summary

In 2006 St. David's Foundation awarded funding to two clinics, People's Community Clinic and Lone Star Circle of Care. Both clinics provide primary care to indigent/underserved populations. These clinics proposed a new integrated behavioral health care model (IBH), which offers mental health services on-site and in collaboration with primary care. The goals of the new integrated health care programs are to:

- 1) **More effectively meet the mental health needs of patients**
- 2) **Improve the physical health and functioning of the patients in the program**
- 3) **Improve the efficiency of clinic operations**

St. David's also funded a process and outcome evaluation for the first three years of operation of the new models. The evaluation is conducted using quantitative and qualitative data sources (e.g. site visits, surveys, patient records). This report presents the results of the evaluation at the end of year three.

Results for People's Community Clinic

In 2006 People's Community Clinic (PCC) hired a Licensed Clinical Social Worker to provide mental health services on-site and in collaboration with primary care providers. The transition to the new model was smooth and there were very few barriers to implementation. In the first three years of operation, 329 patients participated in the new IBH program with an average of four in-person visits and seven phone contacts per patient. In addition to successful implementation, the program outcomes have been impressive. The following highlights the key findings regarding IBH outcomes for People's Community Clinic.

- Patients experienced significant improvements in their mental health.
 - Approximately 61% of patients in the PCC IBH program experienced a 50% or greater reduction in their depression scores over time. This figure exceeds estimates for usual care alone (29%) and established goals for collaborative care (40%).
- Patients' physical health and functioning improved.
 - Emergency room and primary care provider visits declined significantly in the follow-up period.
 - Patients report significantly better overall health, less pain, more energy, better role functioning, and an enhanced ability to socialize with friends and family.
- The PCC IBH program significantly reduced costs.
 - Patient costs were escalating before the IBH program began.
 - Compared to the year before the IBH program, patient costs were 17% lower in the second year and 56% lower in the third year of program operation.
- The IBH program helped to reduce racial/ethnic health care disparities.
 - Among Spanish-speaking patients, 78% experienced a 50% or greater decline in their depression scores compared to 50% of English-speaking patients.

Results for Lone Star Circle of Care

In May of 2006 Lone Star Circle of Care (LSCC) successfully implemented their proposed (psychiatric) model of integrated behavioral health care for adults. By the end of year three the program had provided mental health services to 1844 adult patients with an average of three visits per patient. In 2007 LSCC expanded the IBH program to serve children and adolescents. By the end of the second year of operation the program had served 616 children/adolescents with an average of seven visits per patient. The transition to the adult IBH model was smooth and the program has had impressive outcomes. The pediatric component struggled somewhat in the first few years with patient retention and data collection, but has also made significant progress towards its goals. Key outcomes are outlined below.

- Patients experienced significant improvements in their mental health.
 - Approximately 42% of patients in the LSCC adult IBH program experienced a 50% or greater reduction in their depression scores over time. This figure exceeds estimates for usual care alone (29%) and established goals for collaborative care (40%).
 - Children/adolescents participating in the IBH program experienced significant improvements in their behavior, particularly in externalizing behaviors.
- Patients' physical health and functioning improved.
 - Primary care provider visits declined significantly in the post intervention period.
 - Patients report significant improvements in their pain, ability to do chores, perform daily activities, and socialize.
- The LSCC IBH program was an effective strategy of cost containment.
 - Patient costs were escalating before participating in the IBH program. The LSCC IBH program reversed the cost trajectory, stabilizing patient costs.
- The IBH program helped to reduce health care disparities.
 - The LSCC IBH program is one of the first to demonstrate success with a bipolar population.
 - The program has increased access to mental and physical health care for patients without a medical home.

Conclusions

The summary of program outcomes is quite positive. However, the programs were not without challenges and limitations. The PCC IBH program has struggled with patients who fall outside of the parameters of the model (e.g. those with psychosis, substance abuse). For LSCC, the severity and complexity of the mental health problems of the IBH patients presents a challenge. While the patient populations of the two models present distinct challenges, both programs have impressively initiated integrated care. Both programs are exceeding established mental health goals, improving the physical health and functioning of patients, and reducing or containing costs of IBH patients. In addition, they both appear to have ventured into the uninsured/underserved population and been able to benefit some of its most vulnerable members (Spanish-speaking and bipolar patients). For those concerned with equitable access to health care for the disadvantaged, their performance has been encouraging.



INTRODUCTION

Traditional health care models approach mental and physical health separately, ignoring the strong connection between the two. Fortunately, health care is evolving towards a more progressive model of integrated care. In 2006 St. David's Foundation awarded funding to two clinics proposing to integrate mental health services into their primary care clinics. These were People's Community Clinic in Austin, Texas and Lone Star Circle of Care in Georgetown, Texas. These clinics currently provide primary health care to uninsured/underserved populations. They proposed a new integrated health care model where mental health services are provided on-site and in collaboration with primary care. Both clinics initiated their new integrated models in the summer/fall of 2006.

St. David's also funded a three-year process and outcome evaluation of these two programs. As a process evaluation, we explore whether these two clinics have successfully implemented the proposed models. As an outcome evaluation we examine whether the clinics are more effective and efficient in their efforts to improve the health and well being of their patients. Finally this evaluation is considered a formative, rather than a summative, evaluation. Thus if the clinics' goals are not met, the evaluation is designed to provide insight into the barriers that may hinder implementation and/or effectiveness, so that mid-course adjustment is possible. This report presents the results of the evaluation at the end of year three.



BACKGROUND

On a daily basis, primary care providers are affected by the mind-body connection. It is estimated that in primary care, 60% of patients' conditions are complicated by psychological factors.¹ Depression, anxiety and other mental health disorders contribute to the over use of primary care. For example, studies show that patients with depression/anxiety have health care costs 50-75% greater than patients without mental disorders.² These patients are high utilizers in part because they somaticize their mental health problems and because their mental health conditions contribute to their physical health problems. Research suggests that primary care physicians are not equipped to diagnose and treat the wide range of mental health disorders that they are presented with. Consequently, mental health needs are not addressed, physical health problems are exacerbated, and doctors use their time inefficiently, searching for medical explanations for their patient's condition.³

Programs that integrated primary care with behavioral health care originated in the 1960s. However, the momentum of the movement towards integrated care was undermined by disagreements about how to implement the model (e.g. appropriate behavioral interventions), a lack of empirical data on effectiveness, and the end of the Carter administration.⁴ Enthusiasm for integrated models was revived in the 1990s. Since then a number of programs have been implemented and evaluated rigorously. One such case was of the Hawaii Medicaid study. The entire Medicaid population of the Island of Oahu (Honolulu) (n=36,000) was randomly assigned to either an integrated model or usual care. Patients receiving integrated care saw a nurse or a psychotherapist for their mental health problems. This controlled experiment revealed that the cost of integrated care was recovered by medical-surgical cost savings within 18 months. The significant reduction in medical utilization continued thereafter.^{5,6} These cost data were not supplemented with specific data on the patients' well-being. More recently, an integrated program for the elderly called IMPACT was implemented and evaluated in 18 clinics across five states. These patients saw a nurse for mental health services. The evaluation was also a true experimental design, which demonstrated the effectiveness of integrated health care. Patients in the integrated model showed a significant reduction in depression and improved physical functioning (self-report) relative to patients with depression in usual care. After one year of operation, costs were revealed to be slightly less than the traditional medical model.^{7,8}

While these are the two most rigorously evaluated and well-publicized evaluations, several programs adopting integrated care have been evaluated and the results published in refereed journals. A cumulative meta-analysis of 37 studies revealed a statistically significant benefit of integrated care.⁹ These studies reveal that depression outcomes improved at 6 months and a longer benefit of up to five years was seen. Clearly, integrated care can improve depression beyond that accomplished with primary care alone. As mentioned there are a few (although considerably less) studies of costs. Some suggest there is a cost advantage of integrated care and others suggest the costs approximate that of primary care.^{10,11} However, the most convincing assertion is that made in a recent 2006 article by Gilbody, Bower and Whitty.¹² They conducted a meta-analysis of existing methodologically sound cost analyses of integrated care programs. They conclude that while there are many benefits in terms of reduced depression, integrated behavioral health care programs represent an increased cost and will require investment.

The available literature reveals the potential of integrated care for improving the mental health and well-being of patients with depression. The Hawaii and IMPACT studies in particular are the largest and most rigorous evaluation studies of integrated health care. However, People's and Lone Star clinics serve different populations and propose slightly different models of integration. Three integrated models that more closely resemble those of People's and Lone Star clinics are the TIDES, Marillac and E-Merge programs.¹³

The TIDES program is an integrated model for Veterans (Department of Veterans Affairs System). The model has three providers: a nurse depression care manager, a primary care provider and a mental health specialist. In the model the care manager is the primary contact for the patient. The evaluation of the TIDES program revealed that 90% of patients kept their clinic appointments, 74% were medication compliant, and 83% completed treatment. In addition, a pre/post analysis revealed that depression scores (PHQ-9) declined dramatically. A cost/benefit analysis is being conducted for TIDES but has not yet been published.^{14,15}

The Marillac Clinic was designed to serve the uninsured population of Grand Junction, Colorado. This clinic integrates primary care physicians with case managers who also consult with a psychiatrist when necessary. Evaluations of the Marillac program have been positive. Before the program began 22% of their patients used the ER once in the past year and 9% were hospitalized at least once. After participating in the program, 13% of patients reported using the ER and 4% were hospitalized. It was estimated that this reduced utilization saved the hospital \$228,000 over four months. They also reported that primary care visits declined and mental health visits increased. They interpreted this finding as evidence of successful targeting of services. However, the evaluation did not address the subsequent cost of substituting mental health visits for primary care visits.¹⁶

The E-Merge model most closely resembles that proposed by People's and Lone Star clinics. E-Merge was established in 2002 in Austin and is housed in the CommUnityCare clinics (formerly Austin/Travis county community health clinics). They have eight full-time Behavioral Health Consultants that rotate among the clinics. Seven of the eight are bilingual, licensed Master Social Workers (LMSWs) or Licensed Professional Counselors (LPCs). One BHC is a Ph.D. level Psychologist. Two part-time psychiatrists serve as consultants for all the clinics. The mental health professionals in this model serve as consultants for the primary care physician who is the primary contact for the patient. As with the TIDES and Marillac evaluations, the E-Merge evaluation is less sophisticated than the Hawaii and IMPACT studies because a controlled experimental design was not possible. However, preliminary data using pre/post measures provide indications that the program is being implemented successfully and having the desired impact on patients. Patients in the E-Merge program show a reduction in emergency room visits, primary care provider visits, depression scores and an improvement in their perception of their own health.^{17,18}

Because of the demonstrated potential of integrated care, many foundations are interested in investing in integrated health care programs. The Robert Wood Johnson Foundation funded a Depression in Primary Care

Initiative in 2005. They have contracted with Columbia University to conduct an evaluation of their initiative. The evaluation is in progress. The Hogg Foundation for Mental Health has also funded five sites across Texas, which propose integrated health care models. Their evaluation team is headed by Dr. Richard Frank, a Health Economist from Harvard University. Because one of their funded sites is People's Community Clinic, we have been working collaboratively with Dr. Frank and his team on the People's evaluation.

PEOPLE'S COMMUNITY CLINIC AND LONE STAR CIRCLE OF CARE

The evaluations discussed suggest that integrated care has promise. People's Community Clinic and Lone Star Circle of Care share the basic goals of integration. By offering patients physical and mental health care that is co-located and collaborative they intend to better serve the uninsured/underserved in Travis/Williamson counties. More specifically their goals are:

- 1) More effectively meet the mental health needs of patients**
- 2) Improve the physical health and functioning of the patients in the program**
- 3) Improve the efficiency of clinic operations**

While the clinics share this broad philosophy, they represent the diversity present in current efforts at integration. People's was established in 1970. It is not a federally funded clinic and thus is not required to offer mental health services. To offer such services they have hired a full-time behavioral health care consultant and utilize four hours of consultation from an MHMR psychiatrist.¹⁹ Lone Star Circle of Care (Georgetown Community Clinic) opened in 2002. In 2004 it became a federally funded clinic (FQHC) required to provide mental health services. They initially offered a social services-based mental health model (case managers and licensed social workers). However, they have moved to a psychiatric model because a sizeable number of their patients present with serious mental disorders such as bipolar and schizophrenia which require a psychiatrist's expertise. LSCC hired a full-time in-house psychiatrist in May of 2006 to serve the LSCC adult population.²⁰ In 2007 they expanded their IBH model to include children and adolescents. The program is housed in the Learning and Wellness Center adjacent to the Round Rock Health Center. The proposed evaluation will emphasize the broad goals of integration that these clinics share, while also considering how their unique characteristics influence their ability to successfully implement their proposed models.

EVALUATION GOALS

The evaluation is a process and outcome evaluation. First, it determines whether the two programs are being implemented as designed. Next, it examines whether the clinics are accomplishing their goals (as outlined). The goals and objectives of the evaluation are as follows:

Process

In order to evaluate the implementation of the programs, the evaluation is designed to:

- 1.) Determine if the clinics are providing integrated and collaborative mental health services
 - a. Determine if a mental health specialist has been placed in the clinics and conveniently located relative to the PCPs.
 - b. Determine if collaboration is occurring between the physicians and the behavioral health specialist.
- 2.) Document efforts made to meet the cultural/linguistic needs of clinic patients
- 3.) Describe the populations served by the integrated models by providing:
 - a. The number of clients seen by the mental health specialist and average number of visits.

- b. A description of the patients served in terms of age, sex, race/ethnicity, and mental health diagnosis.
- 4.) Qualitatively identify specific successes with/barriers to implementation

Outcomes

In order to evaluate outcomes, the evaluation is designed to:

- 1.) Determine if the clinics more effectively meet the mental health needs of their patients by:
 - a. Improving access to mental health services (evaluated in year-one only)
 - Identify the percent of patients receiving mental health services who have not received such services before
 - b. Improving the quality of mental health care (evaluated in year-one only)
 - Document improvements in diagnoses achieved by having a trained mental health specialist. Diagnoses may be more specific and/or accurate (e.g. bipolar is often mistaken for depression)
 - c. Improving the patient's mental health
 - Measure pre/post change in mental health of patients receiving treatment (e.g. depression and anxiety)
- 2.) Determine if the integrated models improve the physical health and functioning of patients
 - a. Determine whether primary care utilization declines (Pre/post reduction in emergency room visits, and PCP visits)
 - b. Determine whether subjective measures of health and functioning improve
 - Pre/post change in patient's perception of their overall health, pain, and functioning (SF12v2 survey).
- 3.) Determine if the integrated model improves the efficiency of the clinics
 - a. Reduce the amount of time PCPs spend with patients with dual diagnoses
 - b. Increase comfort of PCPs with mental health diagnoses
 - c. Reduce costs
- 4.) Identify the most/least successful subgroups served by the clinics (e.g. sex, age, race/ethnicity, mental health diagnosis)

EVALUATION METHODOLOGY

To accomplish the evaluation goals, quantitative and qualitative data sources were used. Data sources include existing data (clinic and ICC) and data collected from clinic staff. Table I presents a summary of the evaluation goals/objectives, data sources, and measures. A detailed discussion of the methodology is contained in the evaluation proposal (available upon request). The survey instruments are contained in Appendix A.

Table I: Summary of Evaluation Goals and Methodology

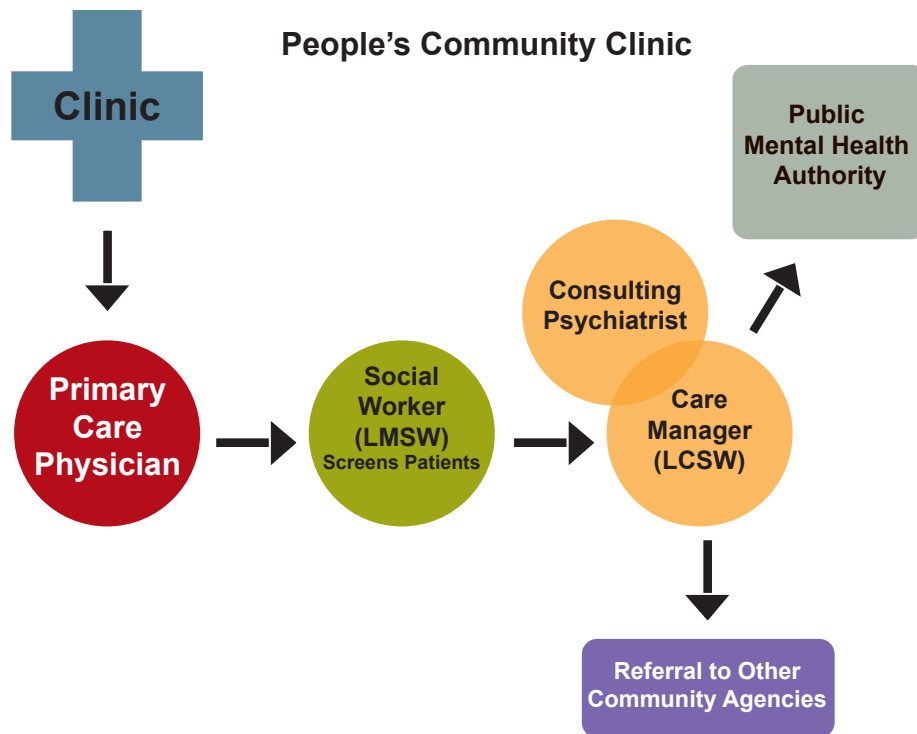
Evaluation Goal	Evaluation Objective	Data Source	Measures
Evaluate Process	MH specialist in-house, integrated, and collaborative	Interviews with administrative staff and site visits	Process interviews and observation during site visits
	Patients served	People's: database LSCC: patient files	# seeing MH specialist AVG # visits per patient
	Patient profile	People's: database LSCC: patient files	Descriptive profile (age, sex, race/ethnicity, and MH diagnosis)
	Success with and barriers to implementation	Interviews with clinic administrators, PCPs and MH specialist	Process interviews
Evaluate Outcomes-Mental Health	Improve access	MH specialist	% of patients who have not previously received mental health treatment
	Improve quality of care	MH specialist	% diagnosis more specific changed
	Improve mental health	MH specialist will administer MH instruments and initiation and every visit	PHQ-9 (depression) OASIS (anxiety) BASC (children/adol.)
Evaluate Outcomes-Physical Health and Functioning	Reduce utilization of primary care	People's: ICC data LSCC: ICC data	Pre/post reduction in ER visits, PCP visits (3 mth intervals)
	Improve subjective indicators of physical health and functioning	1. Patient survey/self-report	2. Pre/post SF-12v2
Evaluate Outcomes Efficiency	Help PCP's to be more effective and efficient	PCP interviews	Process interviews
	Reduce costs	Administrative financial data and/or ICC cost data	Estimate costs pre/post for ER visits, PCP visits, MH visits
Evaluate Outcomes-Subgroups	Relate patient profile to outcomes	Data obtained in earlier phases of the evaluation	1. Quantitative subgroup comparisons 2. Qualitative analysis of confirming and disconfirming cases

Process/Implementation

People’s successfully implemented their new IBH program in the fall of 2006. In the mid-term, year-one, and year-two reports, we described the factors contributing to successful implementation and barriers to success^{21,22,23}. In this third report we offer a brief summary of the program design, offer updates on implementation in the third year, describe PCC plans for the future, and provide staff/provider perspectives on lessons learned regarding the provision of integrated behavioral health care.

People’s IBH Model

People’s Community Clinic is located in central Austin on the corner of I-35 and 29th street. With the financial support of St. David’s Foundation they have created a new integrated behavioral health care model to better serve their patients. To implement the model they hired a full-time behavioral health specialist (a care manager) in September of 2006 to work on-site and in collaboration with the primary care providers. The model also provides the care manager with four hours of consultation from an MHMR psychiatrist per week. In addition, People’s employs two full-time counselors to assist with patients who have less complex mental health concerns. The populations served by the care manager and the counselors tend to be distinct. The integrated behavioral health care model (IBH) proposed and implemented by PCC is displayed in the following diagram.



The providers refer patients to the program that appear to have mental health issues that require a mental health specialist. More specifically, the PCC physicians were asked to refer their “top 5” most difficult to treat mental health patients to the IBH program. These patients then go to a social worker who screens them for the IBH program (using the PHQ-9). Once in the program they receive care from the clinical care manager. The care manager has regular contact with the patient to track his/her treatment adherence and response. She also provides the patient with education about their psychiatric disorder and treatment. If there are barriers to treatment, the care manager works with the patient to address those barriers. Throughout the patient’s care the clinical care manager consults with the MHMR psychiatrist and the PCC physician. Patients receive approxi-

mately six sessions before discharge. The program is generally structured to operate in this way, however it is also flexible to meet the unique needs of the patients. Some patients will have more than six sessions, will finish their sessions and receive counseling, or may leave and return to the program. However, these are the exceptions rather than the rule. The program is not designed to provide long-term counseling. Patients are referred to other community resources for longer-term support.

Interviews reveal that the program has been well received by patients and providers. Most providers see the value of the program and feel satisfied, and in many cases enthusiastic, about the new model. Collaboration is occurring, patients are receiving more attention, and staff skills are more appropriately utilized.

Year Three Implementation

There have been a few changes in the third year of the program. Megan Zesati is no longer the care manager for the program. Megan was replaced by Brenda Fierro. Ms. Fierro, a bilingual LCSW, is an excellent addition to the IBH program and her transition has been smooth.

PCC has also added Sarah Glynney, a care manager (LMSW) for adolescents and young adults. Sarah works with patients from the PCC Center for Adolescent Health and their Teen Prenatal Program. Adolescent/young adult patients, as with adults, are tracked with the registry, using the PHQ-9 and OASIS outcomes measures. PCC began offering IBH services to adolescents ages 15-19 in December 2008. Psychiatric consultation for adolescent patients is provided by Dr. Hageman, who is also the consulting psychiatrist for the Clinic's GOALS Program. GOALS offers integrated developmental and behavioral health services for children and young adolescents. The addition of the adolescent component has been challenging. Teenagers are harder to engage in the program than adults and tend to be less compliant with antidepressant medication or with keeping scheduled appointments. Due to "black box warnings", providers are more conservative in prescribing medications to teens. Thus, a higher percentage of teens than adults are seen in counseling only or in counseling with medication monitoring versus care management alone. The teen care manager has discussed the specific challenges of working with adolescents with Dr. Katon from the University of Washington and has contacted an additional University of Washington staff member who has implemented the Impact model with teens.

Daniel Estrada recently joined the IBH team as the Behavioral Health Assistant upon the departure of Illeana Calderon. Daniel is originally from Mexico and has a degree in Psychology from the Latin American College in Juarez. He is currently carrying a small caseload of predominately Spanish-speaking clients and also assists the other care managers with administrative and clerical duties.

The PCC consulting psychiatrist, Dr. Pelogitis, changed his hours at the clinic in May of 2009. He will still be at the clinic for four hours a week but will be scheduling these hours only one day a week rather than holding two hours, two days a week. While this will limit some providers' face to face access, they are willing to communicate by phone as they have been very pleased with Dr. Pelogitis' consultation and want to ensure his continued involvement with the program.

PCC adopted the NextGen Electronic Practice Management System in April of 2009. However, they will continue to use the HITS data registry for the IBH program. While this electronic medical records system (NextGen) will be a tremendous benefit for the clinic, it poses certain challenges regarding integration with the existing IBH registry database system. The two systems are not compatible. Thus, in order for the mental health data to become part of the clinic EMR, HITS data would need to be printed and scanned into the NextGen system. This situation is not ideal for clinic efforts to have an integrated and efficient electronic system.

Finally, Travis County Healthcare District has agreed to reimburse the clinic for face-to-face adult behavioral health visits. PCC is currently negotiating the billing details but the funding should be in place by the end of the current Foundation grant.

PCC Patient Profile

People’s has enrolled 329 patients in the program in its first three years of operation. There were 1,319 clinic encounters and 2,425 phone contacts in the first three years (average of 4.01 clinic visits and 7.37 phone contacts per patient).

Table 2 provides a profile of the demographic characteristics of the patients participating in integrated care at PCC.

Table 2: Demographic Profile of PCC IBH Patients

	Percent	Sample Size
<i>Sex</i>		
Female	80.9	258
Male	19.1	61
<i>Average age</i>		
	37.8	329
<i>Race/Ethnicity</i>		
White	31.2	86
Hispanic	59.1	163
Black	8.7	24
Other	1.1	3
<i>Preferred Language</i>		
English	72.0	234
Spanish	28.0	91

The majority of IBH patients are female (80.9%). The patient population tends to be either Hispanic (59%) or White (31%). Approximately 28% of patients report that Spanish is their preferred language. The average age of the patient is 37. This racial/ethnic composition is comparable to that of the clinic’s non-prenatal adult population.

The mental health diagnoses of the IBH patients is fairly homogeneous. The vast majority have Major Depressive Disorder. Patients do present with other types of mental health concerns, however, other primary diagnoses such as bipolar are much less common among the patients in PCC’s IBH program. This is likely due to the fact that PCC only accepts patients of the primary care clinic (does not accept general MHMR referrals) and specifically screens patients for the program with the PHQ-9 (depression scale).

The Future of IBH at PCC

Since the evaluation will be ending at the end of year three, we provide a brief overview of PCC’s plans for the future. PCC is committed to continuing the IBH model. They are focused on improving their skills and even expanding the underlying IBH concept to other chronic conditions. Some of their specific plans are outlined below.

Honing their Expertise

PCC staff/providers are continually working to enhance their expertise in the area of integrated care. Through the Hogg Foundation, the University of Washington consultation has been extended for an additional year, beyond the initial three year grant. Staff/providers feel that this consultation has been tremendously beneficial to their IBH program. PCC is actively engaged in contributing to national efforts to offer integrated care. Robin Rosell, Dr. Richard Peavey, and Megan Zesati presented at the Robert Lee Sutherland Seminar on Integrated Behavioral Health care, sponsored by the Hogg Foundation. In addition, Robin Rosell and Dr. Celia Neavel will be submitting a proposal to present at the annual convention of the Society for Adolescent Medicine in Toronto next spring. They will present relevant research on successful models of integrated behavioral health services, as well as practical tips for clinicians interested in integrating their own practices.

Pursuing Broad Application of the IBH model

PCC staff/providers have insightfully recognized the potential of integrated/collaborative care. PCC staff/providers have identified three key features of the IMPACT IBH model which can be broadly applied across other chronic health conditions. These three components are; a) a protocol for screening and treatment b) a specialist and c) a care manager.

PCC recognized that these three characteristics could be applied to a wide variety of chronic health conditions. They consequently are using the IBH model to restructure the clinic's Chronic Disease Management Program (focusing on diabetes). A nurse currently serves as the care manager and PCC recently contracted with an endocrinologist to serve as the "specialist" (to function in much the same way as does the consulting IBH psychiatrist). The endocrinologist meets weekly with the program coordinator/nurse care manager, health educator, primary care physicians and the IBH consultant to review cases and programmatic issues. PCC recently started "Diabetes Tuesdays" where diabetic patients can see their provider, meet with the nurse care manager and health educator, consult with the nutritionist and health psychologist if needed, and be screened for depression and anxiety, all on the same day. It will be interesting to see if this new collaborative approach to diabetes care will improve patient outcomes and if so, what other chronic conditions might benefit from this collaborative care model (e.g. hypertension, asthma, obesity).

PCC Perspectives: Lessons Learned

At the end of the third year of operation, in-depth exit interviews were conducted with PCC staff and providers to obtain their perspectives on the first three years of operation of the new IBH model. They were asked to discuss lessons learned that might help other organizations planning to adopt integrated behavioral health care. Their comments are listed below.

Factors Contributing to Success

Committed Staff/Providers: PCC staff/providers feel that the competence, compassion, and commitment of staff and providers is a key factor contributing to the success of the IBH model at People's. As has been written in previous reports, the competence and cultural sensitivity of the mental health providers and the strong administrative oversight have helped People's to have a smooth transition to the new model and to continue with the successful implementation. There has also been a lot of continuity among the providers and while Megan Zesati left in 2009 for maternity leave, she continues to be connected with the program and offer consultation. Because of PCC's effort in the area of retention and recruitment, they have been able to provide care to patients in a timely manner with little to no waiting period and to offer all needed services associated with the IBH program (e.g. screening, case management, therapy, psychiatric consultation). For those planning to offer integrated

behavioral health care, finding competent staff/providers and those who are committed to collaborative care is essential.

True Team Approach: PCC staff/providers agree that collaboration benefits providers and patients. Primary care providers have much needed assistance for addressing mental health issues. This increases their comfort level when working with mental health conditions and frees up more time for them to focus on physical complaints. This is an effective and efficient system, which successfully leverages each provider's competencies. One provider stated that the "the power to effect change is so much greater when you are working with several different people and several different perspectives." Providers also noted that People's has fostered a true non-hierarchical multidisciplinary approach. Physicians, care managers, psychiatrists, and counselors, are equal and respected for their unique contributions to patient care. This lack of hierarchy is critical to having a true collaboration.

The IMPACT IBH Model: Through their partnership with the Hogg Foundation, PCC has received the added benefit of training and ongoing consultation for the IMPACT IBH model, developed by the University of Washington. As discussed, the IMPACT model is a very specific approach to integrated care that has three basic components a) a care manager, b) psychiatric consult, and c) a protocol for treating patients and tracking their progress. PCC staff/providers felt that this IMPACT model was quite sound and commented on what they felt were the most valuable specific aspects of the design.

1. *A Physician's Champion:* Dr. Richard Peavey has served as the physician champion since the program's inception. He serves as a bridge between mental health providers and primary care providers. This helps primary care providers to see the benefit of the IBH program and to feel more comfortable with the collaborative process.
2. *Care Manager:* The care manager is of course a critical component of the model. It places mental health on an equal footing with primary care, rather than as a lesser support service or referral. Care managers work in consultation with the physicians for a true collaboration and provide intensive case management for patients.
3. *Follow-up:* Patients receive intensive support with several in-person visits and numerous phone contacts. Providers/staff felt that this contact was essential to the success of the model. One person commented, "Having a human being call you weekly or biweekly, that is something most of these people don't have in their lives. I think it greatly increases the compliance and follow through on the medication. We used to not have such extensive follow-up.....it has closed a feedback loop that was not closed before."
4. *Psychiatric consultation:* Provider buy-in is considerably easier to attain with the presence of a psychiatrist for consultation. Physicians feel particularly comfortable collaborating with another physician and the psychiatrist helps to bridge the gap between the perspectives of the physicians and the mental health providers.
3. *Registry:* The online database system provided by the University of Washington has been an invaluable part of the IBH program at People's. It allows the Care Manager and therapists to manage their caseloads (keep track of patients, have reminders for follow-up, etc.) and collect data more efficiently. It also helps them to share data on patients with one another and to empirically (and visually) track their patient's progress.

Program Challenges

Narrow Program Parameters

Since the program's inception, PCC has struggled with patients who fall outside the program parameters. This includes patients with more severe forms of mental illness who are referred to MHMR but who are unlikely to receive timely treatment. Patients with substance abuse problems and those with personality disorders are also

difficult to treat given program resources and the short-term structure of the program. For example, patients with personality disorders require long-term therapy, which is not a component of the IBH program. However, many patients do seem to treat the PCC IBH program as a long-term resource. Staff/providers have discussed the need to more clearly conceptualize the program as more of a stabilization program, rather than a long-term intervention. The program will benefit from having a clearly defined program mission and goals and a system for communicating these parameters to program patients.

Funding Constraints

While all IBH programs experience the struggle to financially sustain their IBH programs, People’s is particularly challenged by its lack of FQHC status and the rigidity of the guidelines for third party reimbursement. For example, People’s delivery model is not compatible with traditional payment models, which provide reimbursement for in-person contact only. The PCC IBH program relies heavily on phone contacts which are not a reimbursable expense under these guidelines. These payment structures often reward traditional models of care and penalize more innovative (and cost effective) approaches to care. Thus, People’s often must choose between financial support and innovation.

Difficulty in Expansion

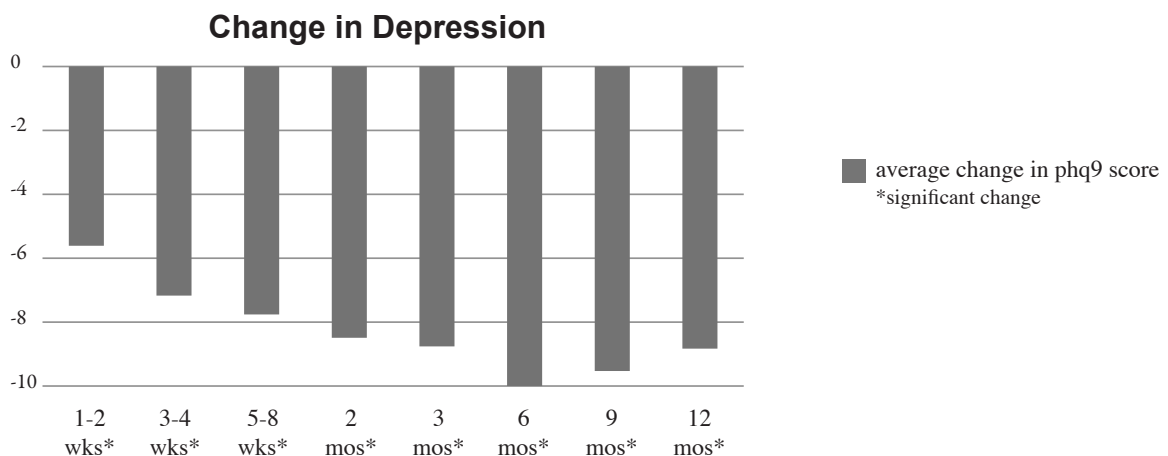
People’s has been successful in expanding their program, albeit on a small scale. Their program focuses on existing People’s patients and offers intensive services to a relatively small number of patients. They provide services in a timely manner, with extensive follow-up, while meticulously maintaining patient data for assessment. This level of service likely contributes to the very positive outcomes seen for the PCC IBH patients. In addition they have kept costs low with a social services based IBH model and with an emphasis on phone contacts for follow-up. Staff feel that by keeping the number of patients small they were able to create a program that is organic, patient-centered, and carefully controlled. However, there is often an expectation to be scalable, broadly applied, and to serve a large number of patients. People’s struggles with how to offer the IBH model to a larger number of patients with existing resources and without sacrificing the quality of care that has been established in the first three years of program operation.

PCC Outcomes

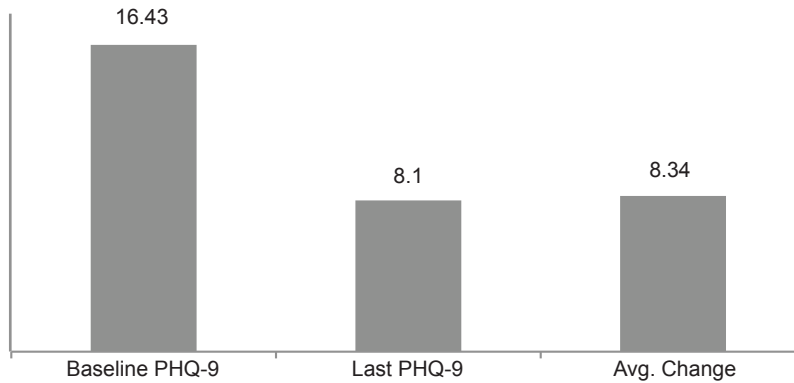
Improved Mental Health

Changes in Depression for IBH Patients

The most common survey instrument used to measure depression is the PHQ-9. Patients in the PCC IBH program were given the PHQ-9 at the initial assessment and every visit thereafter. PHQ-9 scores were monitored for those whose scores were high enough at assessment to warrant inclusion in the IBH program (10 or higher). The graphs below reveal how People’s IBH patients’ PHQ-9 scores changed over time.



The depression scores for patients dropped precipitously over time. At three months follow-up the average patient saw an 8.76-point decline in depression. These improvements were sustained through the 12 month follow-up period.



Pre/Post Depression Scores

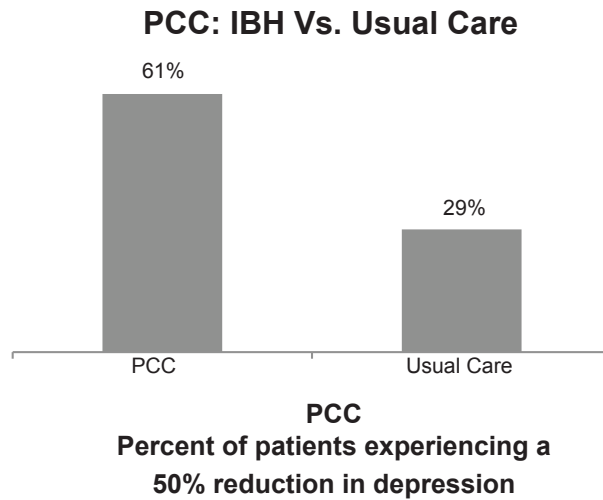
For all patients who have a follow-up PHQ-9 score (n=269), on average, depression declined by 8.34 points (pre/post). For patients with at least two PHQ-9 scores, the average initial depression score was 16.43 (classified as moderately severe depression) whereas the average follow-up score was 8.1 (classified as mild depression). This decline (51%) is statistically significant and substantive. It also compares favorably to the results of other IBH evaluations. The 2005 evaluation of the Austin/Travis county E-merge program reports that their integrated health program resulted in a 3.2 point reduction in depression scores (PHQ-9) on average. The average PCC pre/post change in depression reported at the end of year one was a 7.49 point decline and an 8.2 point decline at the end of year two. Thus the outcomes for year three are comparable to, and slightly better than, those reported in the earlier years of the program.

Patients in the IBH program were also administered a survey to capture anxiety (OASIS). As with depression scores, anxiety scores declined for PCC patients. The average change was 5.73 points, a statistically significant decline (50%). This is an even larger decline than was reported in previous years.

Comparison to Patients in Usual Care

A limitation of the present analysis is the absence of a comparison/control group. For practical and ethical reasons it was not possible to find a comparison group of patients with mental health problems but who were not offered integrated behavioral health care. Without a comparison group it becomes difficult to know whether these improvements in depression would have occurred on their own or with primary care alone. A few studies have been conducted which offer estimates of the change in depression over time from primary care alone. These studies usually report the percent of patients who experience a 50% or greater decline in depression scores over time. The estimates range from 19 to 45% and cluster around 29%.^{24,25,26,27} Another approach is to use the goal established by the Institute for Healthcare Improvement.²⁸ Their Health Disparities Collaborative suggests the objective of collaborative care should be to have 40% or more of the patients realize a 50% or greater reduction in depression scores. To compare the PCC program to these estimates/goals we calculated the percent of PCC IBH patients who achieved a 50% or greater reduction in their depression scores. To be consistent with

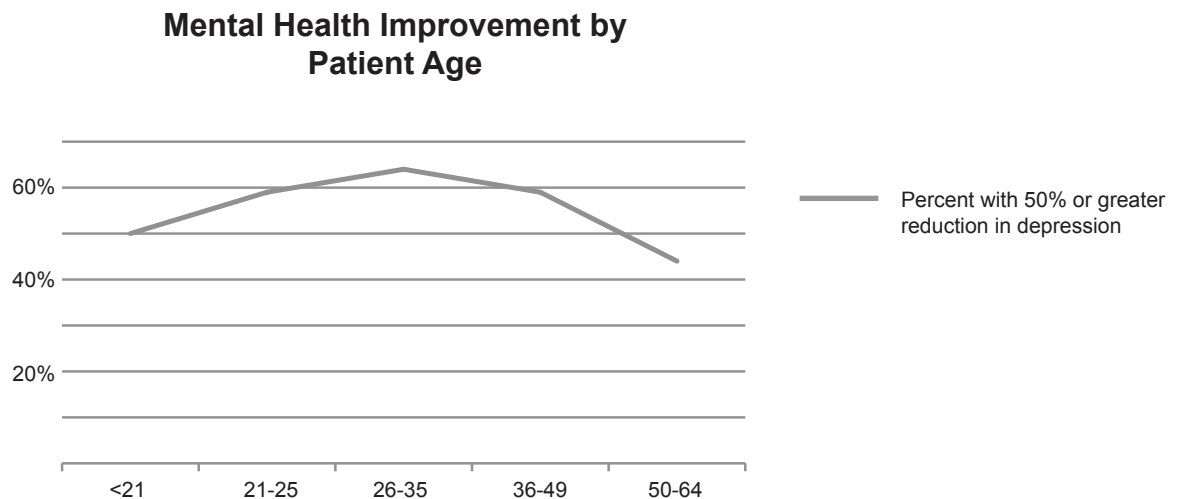
the estimates from the literature, we examine patients for whom three months follow-up data are available (n=110). The results of this comparison are displayed in the chart below.



Results reveal that 61% of PCC IBH patients achieved this level of improvement. When examining the smaller subgroup of patients who have been followed for six months (n=89) we see an even greater success rate with 66% of these patients experiencing this level of decline in their depression scores. Thus the PCC patient improvements exceed available estimates of the changes that would occur with usual care as well as the high standards set by the Institute for Healthcare Improvement for Collaborative Care. This is an impressive finding since patients in the PCC IBH program were referred to the program because they were treatment resistant. Patients in the usual care (and some collaborative care) studies are often not as challenging to treat as are those in the PCC IBH program.

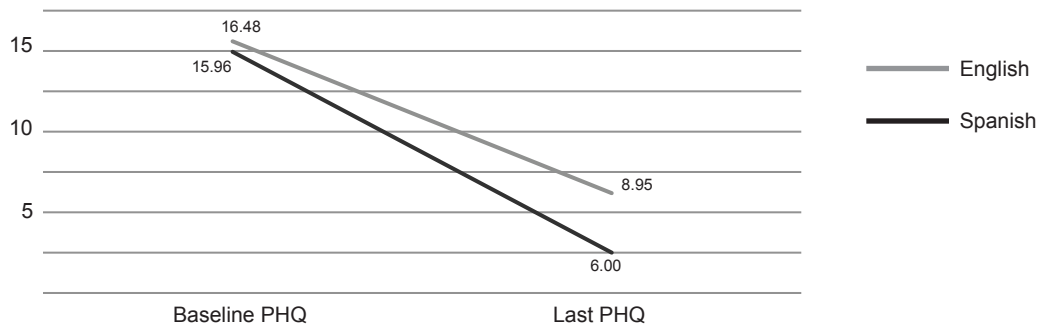
Subgroup Analysis

Analyses were conducted to determine whether particular types of patients respond differently to the program. These analyses reveal whether there are differences in depression change scores by sex, age, and ethnicity/language. No significant group differences in PHQ-9 change scores were detected for sex. There were significant differences in outcomes by age. These differences are displayed in the chart below.



While all age groups experienced impressive improvements in mental health over time (exceeding the guideline of 40%), results reveal that the younger and the older age groups present unique challenges for the IBH program. This is consistent with existing literature which suggests that children/adolescents and older adults have unique strains (e.g. family problems, retirement) which exacerbate their mental health conditions.

We also found that there were significant differences in the PHQ-9 change scores by language. Patients whose preferred language is Spanish saw a significantly greater decline in their depression scores than those whose preferred language is English. The results are presented in the chart below.



Additional analyses reveals that while 50% of English speaking patients experienced a 50% or greater reduction in their depression scores over time, 78% of Spanish speaking patients exhibited this level of improvement in their mental health. This is an exciting finding as there is no existing literature on the effectiveness of integrated care for Hispanic populations. Hispanics have traditionally been an underserved population, being more likely than Whites to report inadequate care, particularly in the area of mental health. In addition, language has proven to be an additional barrier to receiving quality health care²⁹. It is encouraging to see that the People's IBH program is particularly likely to have success with this population.

We also examined patients with and without substance abuse problems as program staff have expressed concerns over whether the program is appropriate for these individuals. While patients with substance abuse issues were able to achieve significant declines in their depression scores over time, their level of improvement was significantly below that achieved by patients without substance abuse issues. This merely supports the anecdotal assessments of PCC staff who have reported that patients with substance abuse issues are more difficult to treat and require services that go beyond those available with the existing model. We analyzed other types of conditions such as chronic pain, ADHD, and Post Traumatic Stress Disorder and found there to be no differences in outcomes for patients with these additional concerns. They were just as likely to achieve significant and substantive declines in their depression scores as were patients without these conditions.

Improved Physical Health and Well-being

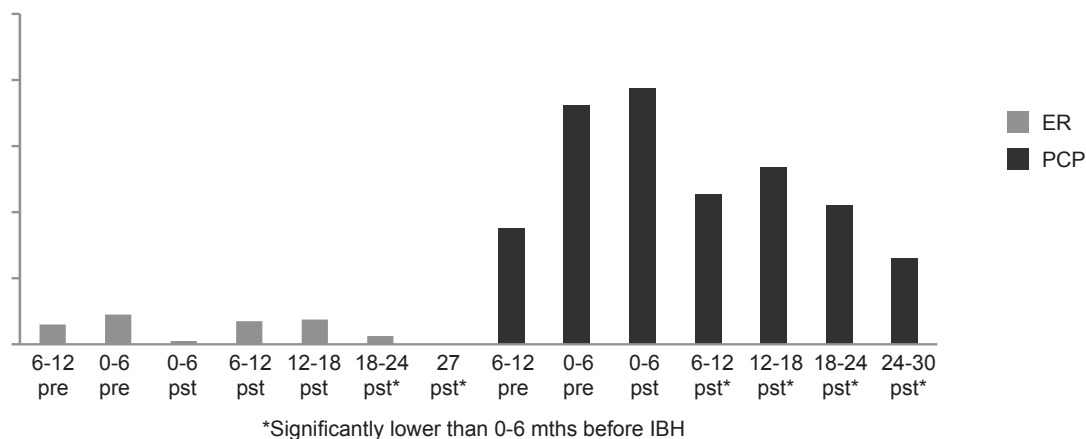
Primary Care Utilization

One assumption of integrated care is that patients will use primary care more appropriately. That is, they will reduce visits to the ER and primary care physicians because they will no longer use these services to address

mental health issues and will be less likely to somaticize their mental health problems. In addition, in keeping with the mind/body connection, patients whose mental health improves should see a real improvement in their physical health as well. Thus, ER and PCP visits were measured for the time period before integration and after to see if patient utilization of primary care declined as a result of the new IBH model.

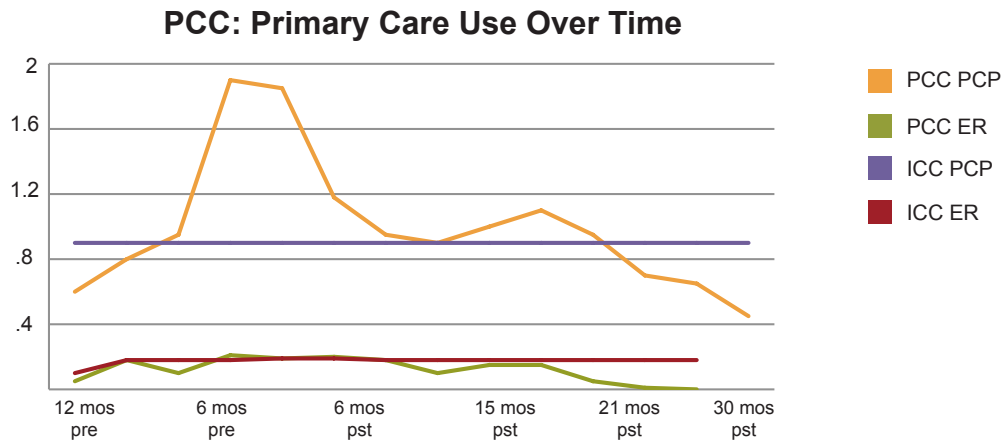
The Integrated Care Collaboration (ICC) is a non-profit organization that works with multiple providers in the central Texas area to assist in the effort to provide care to uninsured/underserved populations. One of their accomplishments is the I-Care clinical data repository. This is a database created by a number of providers to track the primary care utilization of uninsured patients. These data were used to track the primary care use of PCC patients in the IBH model. The data are quite strong in terms of PCP use. However, tracking emergency room visits was more difficult. Patients must sign ICC authorization forms to allow providers to share these data with ICC. If a patient does not sign the form then ER visits (and visits to clinics other than PCC) are not available. Approximately one-third of PCC IBH patients do not sign these forms. This is an improvement from the year two report where only one half of PCC IBH patients provided authorization. Thus, the data are stronger in the third year. However, because one-third is a substantial amount of missing data, we analyzed the relationship between the provision of authorization and primary care provider visits and found significant positive correlations (those providing authorization had significantly more primary care provider visits than those not providing authorization). Since we also found that primary care provider visits correlate positively with ER use, this suggests that those providing authorization are heavier users of primary care. Consequently, the sample provided by the ICC likely overestimates emergency room visits. To correct for this bias we used regression analyses to estimate missing ER visits using available PCP data (because of the significant correlation). We feel this offers an improved analysis of ER use and substantially reduces the bias in the sample. We conducted the trend analyses of emergency room visits with and without this statistical correction. The trends observed were virtually identical, thus the same conclusions are reached whether the statistical adjustments are made or not. The statistical adjustments simply reduce the inflation of the ER visits at each time period. However, since these are estimates of use, specific ER figures for any time period must be interpreted with caution.

PCC: Primary Care Use



As the table above indicates, average ER and PCP visits were slightly higher in the first six months of program operation relative to the six months before integration. However, primary care use began to decline six months after the program had been implemented. By 18-24 months, follow-up ER and PCP visits had declined significantly relative to the period before patients began participating in the program and remained significantly lower in the last follow-up period. There were no ER visits for any PCC IBH patients in this final follow-up period (between 24 and 27 months).

The chart below provides a view of PCC IBH patients' PCP and ER visits over time (similar to that presented in the bar chart above). However, it also provides a comparison of PCC IBH patients' primary care use to that of the average patient in the ICC I-Care database of uninsured/underserved patients in the Central Texas area (non-prenatal patients). The figures for the average ICC use are also statistically adjusted for the overrepresentation of heavy primary care users. Thus, the exact estimates for average ICC use should be interpreted with caution. They merely serve as a very general view of estimated average use.

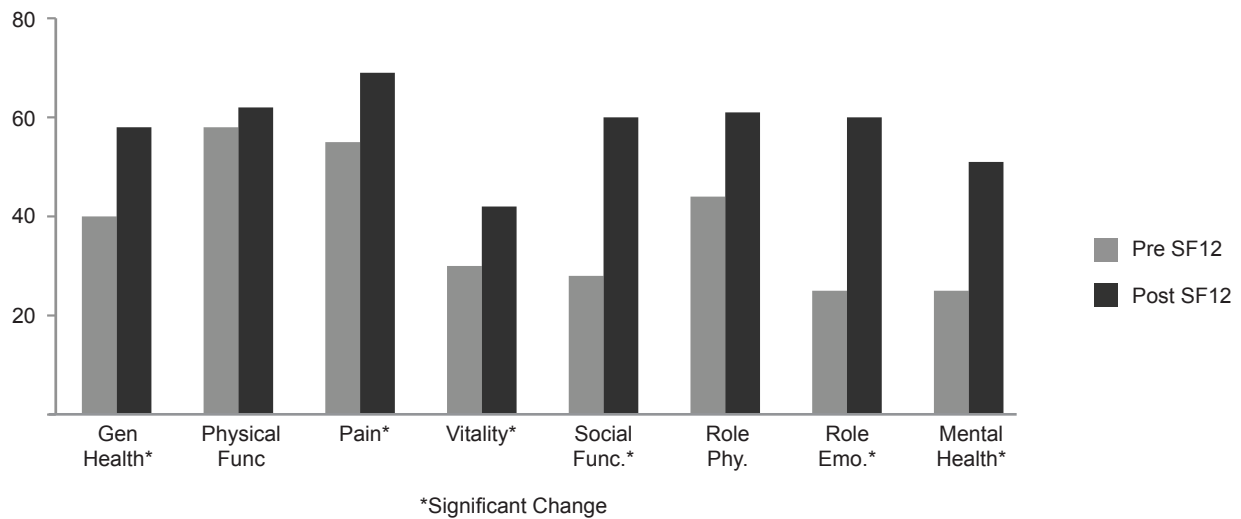


The most striking pattern revealed by the chart above is that PCC IBH patients' primary care use was escalating over time before beginning the program. Once initiating the program their primary care use increased further in the first three months. However, by the six-month post intervention period, primary care use (particularly PCP visits) began a dramatic decline. Overall, at the last observation period, PCP and ER visits were the lowest recorded in the entire observation period (pre or post). In addition, when viewing the PCC IBH patients' primary care use compared to that of the average ICC patient, we see that nine months before participating in the IBH program PCC patients' primary care use (particularly their PCP visits) began to deviate substantially from that of the average ICC patient. As predicted for patients with major depressive disorder, PCC IBH patients were heavy users of primary care. However, their use began to decline over time with the intervention and PCP and ER visits concluded at levels below that of a typical ICC patient. This suggests that the program has been an effective approach to crisis management for patients with major depression and escalating/excessive health care use.

Self-Reported Health and Functioning

A final outcome measure examined is the SF12v2. This is a brief survey of health and well-being. It allows the respondent to self-report their own perspectives on their physical health, mental health, and overall functioning. Patients were given this survey at the initial assessment and at discharge. The results for the first survey and the survey given at discharge are displayed in the chart below. Higher scores represent better health/functioning for each component.

PCC: Self Reported Health



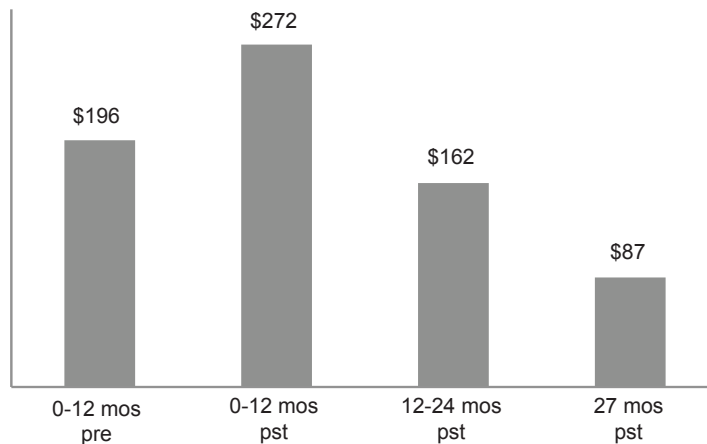
This analysis reveals that PCC IBH patients report significant improvements in a number of areas. Specifically, IBH patients report better overall health and that they have less pain, more energy, can accomplish more, and were more likely to socialize with friends and family than at the beginning of the program.

Cost Analysis

One of the goals of the IBH program is to improve the efficiency of clinic operations by reducing costs. Thus, we examined the average per patient costs for the year before the IBH program and compare that to costs in the periods following the intervention.

For the “pre” period we examine the number of clinic physician visits and ER visits. For the “post” period, costs reflect the number of visits with the collaborative care manager, counselor visits, PCP clinic visits and ER visits. We chose to exclude inpatient visits from the analysis. Inpatient visits are rare for IBH patients (estimated to be present for approximately 2% of patients) yet their costs are dramatically higher than for patients with only clinic or ER visits. Because PCC’s sample is relatively small and not all patients provide authorization, the costs of one or two patients could have a dramatic effect on the cost estimates and provide a skewed estimate of costs. The unique cost of each type of visit was estimated from the financial departments/managers of ICC, PCC, and LSCC. The cost estimates were \$126 for a physician clinic visit, \$68 for a visit with the collaborative care manager, \$53.5 for a therapist/counselor visit, and \$403 for an ER visit. The following chart reveals the costs for patients before they began to participate in the IBH program (pre) compared to the costs once they began receiving services through the IBH program (post).

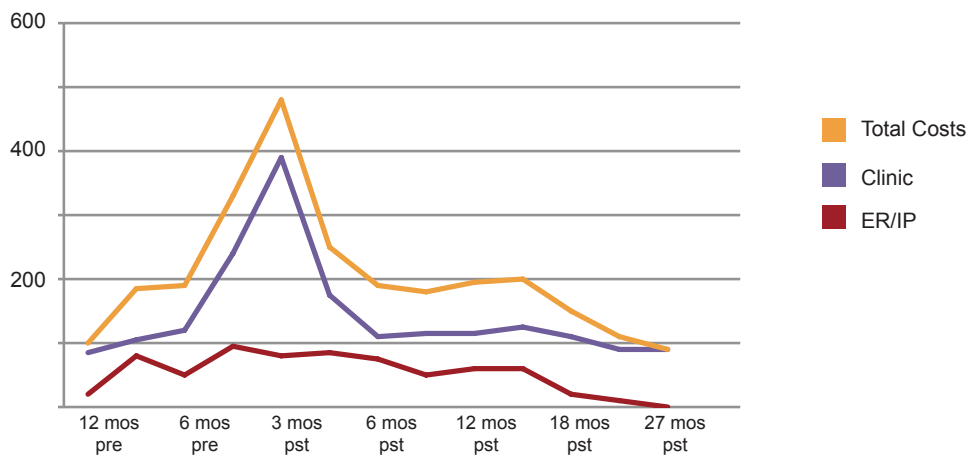
PCC Costs Avg. cost qtr/patient



These figures reveal that the average cost per patient per quarter increased significantly once the patient began to participate in the IBH program. Thus the program does require an initial investment. However, these cost increases were short-lived. In the second and third year of operation costs were below the year before intervention.

The chart below provides cost information but presented as a line graph. It simply offers more detailed information on the changes in costs over time.

PCC IBH Patient Costs Over Time



Results reveal that costs for patients selected for the IBH program had been increasing in the 12-month period before the program began. This suggests an escalation of their mental and/or physical health problems. Once beginning the program their costs increased further. The cost per patient peaked in the first three months of their program participation. Since costs were escalating without the program, we cannot assume that the program is solely responsible for the increase in costs in the first three months. Patient costs may have escalated during that period (in line with the existing trajectory) without the program. In addition, beginning at six

months post intervention costs began a steep and persistent decline concluding at a level significantly below that of the period before the intervention.

The following table briefly summarizes how costs in the post/intervention period compare to costs before the IBH program was adopted.

Table 3: PCC Change in Costs Pre/Post IBH Intervention

Post intervention follow-up period	% Change relative to 12 month period before IBH	% Change to 6 month period before IBH
Year 1 (average/quarter)	+39%	+7%
Year 2 (average/quarter)	-17%	-36%
Year 3 (average/quarter)	-56%	-66%

In the second year of operation, IBH patient costs were 17% lower than in the year before the IBH program was adopted (usual care). These cost savings were even more substantial in the first quarter of the third year of operation (56% lower).



RESULTS FOR LONE STAR CIRCLE OF CARE

LSCC initiated its IBH program for adults in 2006. In 2007, LSCC expanded the IBH program to include children/adolescents. Because the pediatric component differs from the adult program in terms of mental health providers, location, and timing of introduction, we assess the two components separately in the evaluation.

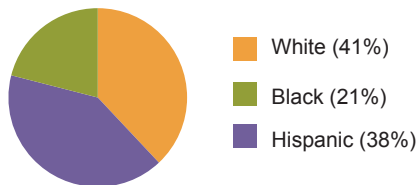
LSCC Pediatric IBH Model

Process/Implementation: Year Two

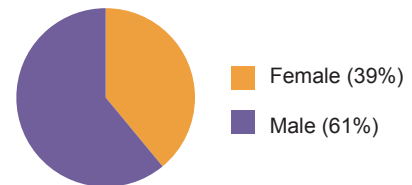
In the summer of 2007 LSCC initiated the IBH pediatric program. This component is currently housed in the Learning and Wellness Center which is adjacent to the Round Rock Health Center. In 2008 the pediatric program added two part-time child psychiatrists, Dr. Tracy Asamoah and Dr. Nakia Scott. The LSCC IBH pediatric program serves children and adolescents with severe behavioral health issues, such as fire starting, aggressiveness and severe depression. Mental health providers work with pediatricians to treat patients mentally and physically, and there are no limitations on the number of visits.

In the first year of operation the pediatric component struggled with staffing, space constraints, patient retention, and data collection. However, many of these challenges were addressed in the second year of operation (see year-two report for detail). New staff members were hired, a no show policy was adopted, evening hours were offered, and the space for services was expanded. This enabled the pediatric program to have a more successful implementation of their IBH model in the second year. By the end of the second year of operation, the LSCC pediatric program had seen 616 children and had 4276 encounters (6.9 visits per patient). The profile of these children/adolescents in terms of their mental health conditions and their demographic characteristics is presented in the charts below.

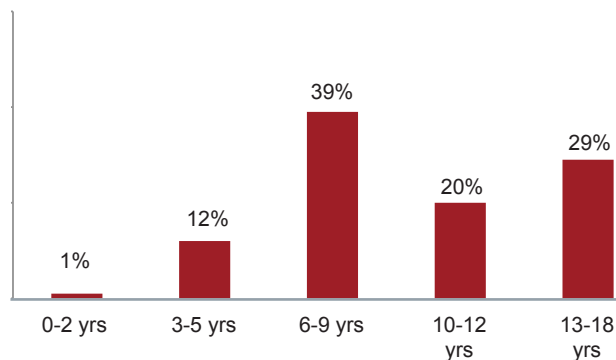
Race/Ethnicity



Sex



Age



The majority of the children/adolescents are male (61%). The patient population is racially diverse with 41% White, 38% Hispanic, and 21% Black. The average age of the patients is 10 with a wide age dispersion.

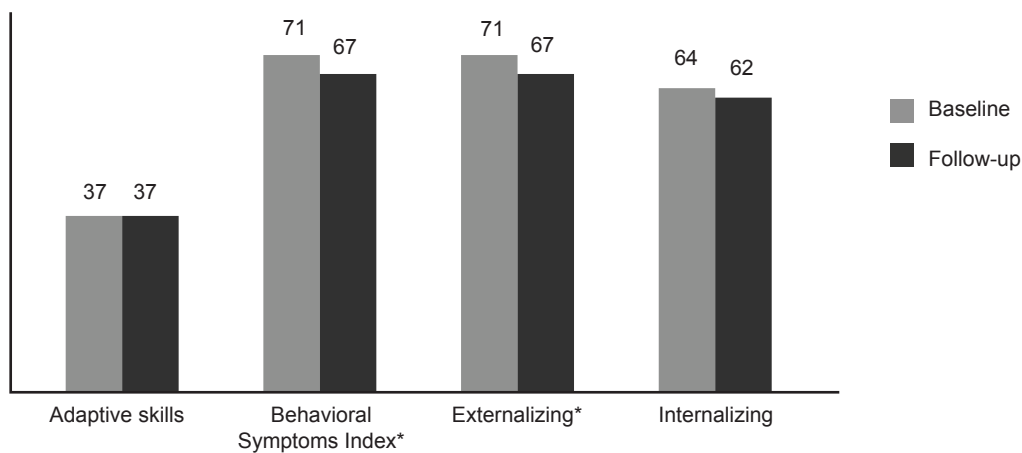
The LSCC pediatric patients present with a number of different mental health concerns. The most common presenting conditions are ADD/ADHD, depression, anxiety, and conduct disorder. The Behavioral Assessment System for Children (BASC) was given at assessment for the IBH patients and at two months follow-up (and where possible again at four months follow-up). The BASC is a reliable and valid survey instrument which provides information on child/adolescent mental health on a number of different components.³⁰ It measures maladaptive behaviors that cause impaired functioning such as aggression, conduct programs, anxiety, somatization, and withdrawal. It also measures adaptive or positive behaviors such as functional communication, leadership, social skills, and study skills.

We analyzed the baseline scores on the BASC for the patients for which baseline data were available (n=191). Examining the four BASC composite measures, we see that the majority of LSCC pediatric patients profile as at risk or clinically significant on Adaptive Skills (69%), Behavioral Symptoms Index (81%), Externalizing Disorders (77%), and Internalizing Disorders (54%). Results suggest the children in the program have a wide range of problem behaviors/conditions which warrant intervention. Thus the program is serving a large number of children in need of behavioral health care.

Outcomes for Pediatric Program: Year Two

While we did not have sufficient follow-up data to measure outcomes in year one, at the end of year two, we are able to provide outcome measures for children who remained in the program for the designated follow-up period (two months). Follow-up BASC scores are available for 52 of the children participating in the LSCC pediatric IBH program. The changes in these scores from baseline to follow-up are presented in the chart below.

**Composite BASC Measures:
Mean Scores for Baseline and Follow-up**



*statistically significant improvement

The chart above reveals that patient scores on the behavioral symptoms index and the externalizing problems composite measures significantly dropped (improved) from baseline to follow-up (two months). The behavioral symptoms index is a summary measure which includes hyperactivity, aggression, depression, attention problems, atypicality, and withdrawal. The externalizing problems measure captures hyperactivity, aggression, and conduct problems. Thus, on these important behavioral measures, LSCC pediatric patients are seeing significant improvements. Internalizing problems (e.g. anxiety, depression, and somatization) did not change significantly, however, patients were less likely to present with high scores on internalizing problems compared to externaliz-

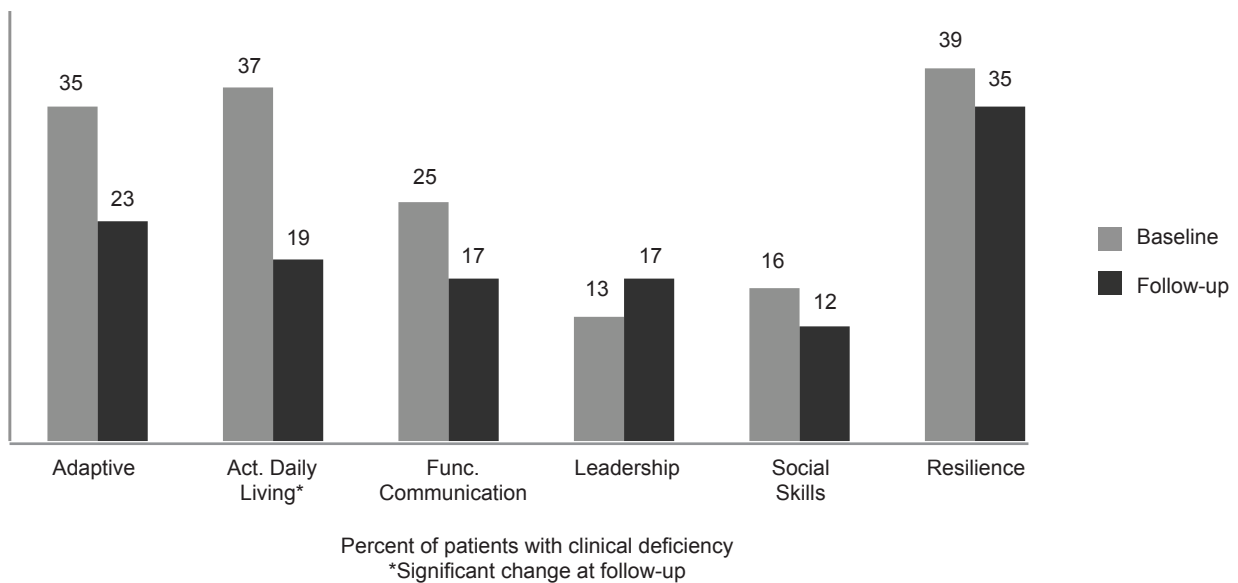
ing and behavioral problems. The adaptive skills composite measure also did not change significantly. Adaptive skills refer to functional communication, social skills, leadership and activities of daily living. However, adaptive skills (e.g, poor leadership skills) are less often the primary motivation for treatment and thus may not receive the same emphasis in the early months of treatment as more disruptive symptoms (e.g. aggression).

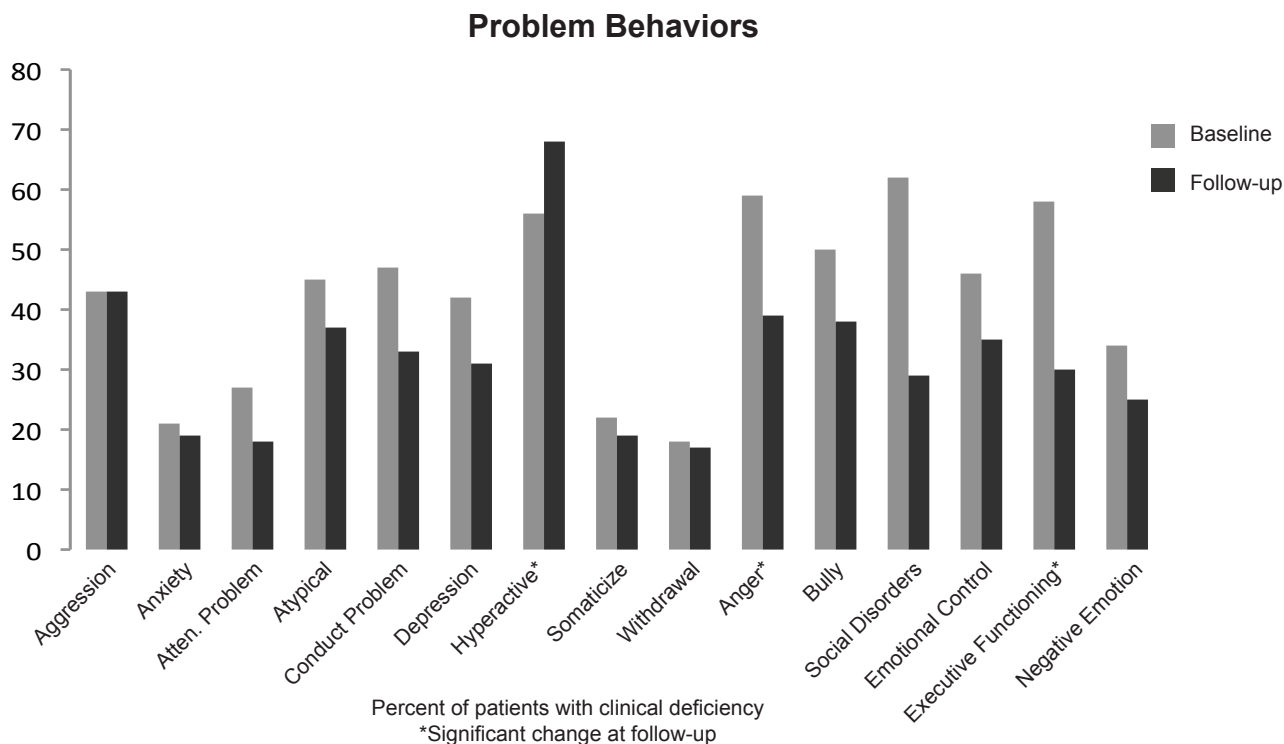
Table 4: Mean BASC Scores for Baseline and Follow-up (two months)

Measure	Baseline Score	Follow-up Score	Mean Difference	N	Significance
Adaptive Skills	37	37	0	48	ns
Behavioral Symptoms Index	71	67	4	49	.02
Externalizing	71	67	4	2	.02
Internalizing	64	62	2	51	ns
Adaptability	35	37	-2	52	.04
Aggression	68	67	1	52	ns
Activities of Daily Living	35	39	4	52	.04
Anxiety	59	57	2	51	ns
Attention Problems	64	62	2	52	.04
Atypicality	68	64	4	51	.04
Conduct Problems	69	66	3	47	.04
Depression	68	64	4	52	.03
Functional Communication	39	38	1	48	ns
Hyperactivity	70	66	4	52	.01
Leadership	41	40	1	46	ns
Social Skills	40	41	-1	51	ns
Somatization	56	57	-1	52	ns
Withdrawal	58	5	0	50	ns
Anger	71	66	5	49	.001
Bullying	71	66	5	50	.01
Social Disorders	66	64	2	49	ns
Emotional Self-Control	69	66	3	50	ns
Executive Functioning	69	66	3	49	ns
Negative Emotionality	66	64	2	50	ns
Resilience	34	34	0	49	ns

Table 4 provides detailed information on the mean BASC scores from baseline relative to follow-up (two months). Out of the twenty five measures/composite measures significant improvement was seen on eleven measures. The greatest improvement was seen on patient average scores on anger and bullying, two of the measures with the highest baseline scores. Clearly, the behaviors most in need of intervention were those that saw the most significant improvement with treatment. Depression, hyperactivity, activities of daily living, and externalizing behaviors in general also saw relatively large declines in BASC scores over time. Those items demonstrating little change were often those that had less severe baseline scores, some which were not considered at risk or clinically significant. For example, there was no significant change in withdrawal, however, the average score on withdrawal at baseline was 58, which is below the at risk range (60-69) and far below the clinically significant range (70 or higher). The table above is presented to provide detailed information on patient scores. To aid in the interpretation of BASC outcomes, the following chart examines BASC outcomes in a different manner. The chart below provides the percent of LSCC patients who score in the clinically significant range for each item, at baseline and again at follow-up. This allows us to examine the percent of patients who, while demonstrating serious problems on these dimensions at baseline, had no longer scored in the clinically significant range at follow-up.

Deficiency in Positive Behaviors





The charts above reveal the dimensions for which patients saw the greatest improvements. Consistent with the mean scores we see that LSCC pediatric patients were most likely to have clinically significant problems in terms of hyperactivity, anger, bullying, and executive functioning. And it was in these areas that we see the most dramatic improvements in scores (a large drop in the percentage of patients with clinically significant deficiencies in these areas). Atypicality, conduct problems, depression, and emotional control also were relatively high and evidenced considerable improvement. One of the few areas that profiled as high was aggression. However, this was one of the few dimensions which did not see improvement. It is unclear why improvements were seen in related areas of externalizing behavior (e.g. anger and bullying) but not aggression. It will be interesting to examine whether aggression is more amenable to change with longer periods of follow-up. In sum, the pediatric program is serving patients with a wide array of clinical concerns and is helping to reduce a number of these problems, particularly those presenting as the most serious.

While there were a number of improvements to the pediatric program in year two, the program continues to struggle with patient retention and data collection. For example, while we can report follow-up scores for 52 children, this represents a small percentage of the patients who entered the program. Some of these were lost to a lack of participation and some represent those patients who came for treatment but for whom no follow-up BASC was obtained. Analyses were run to see if certain types of patients were less likely to return and/or to complete follow-up measurements. We examined whether a lack of follow-up was related to age, sex, race/ethnicity, diagnosis, and scores on all of the BASC components. There were no patterns. This suggests that the program is not likely to lose any particular type of patient or patient concern. There have been a number of internal discussions with the pediatric mental health providers and LSCC staff about data collection. It appears that the length of the BASC is a major barrier to data collection efforts. While it was chosen for its clinical value, breadth, reliability and validity, LSCC providers/staff and I agree that the instrument should be replaced. Unfortunately there are no clinical measures considerably shorter than the BASC for a pediatric population. Therefore we recommend that a brief overall functioning measure be used in future assessments for a pre/post analysis of patient improvement (e.g. the BIS, Brief Impairment Scale). While this won't provide much clinical assistance or detail on symptoms, it will offer an opportunity to see patient improvement for a larger sample of patients served.

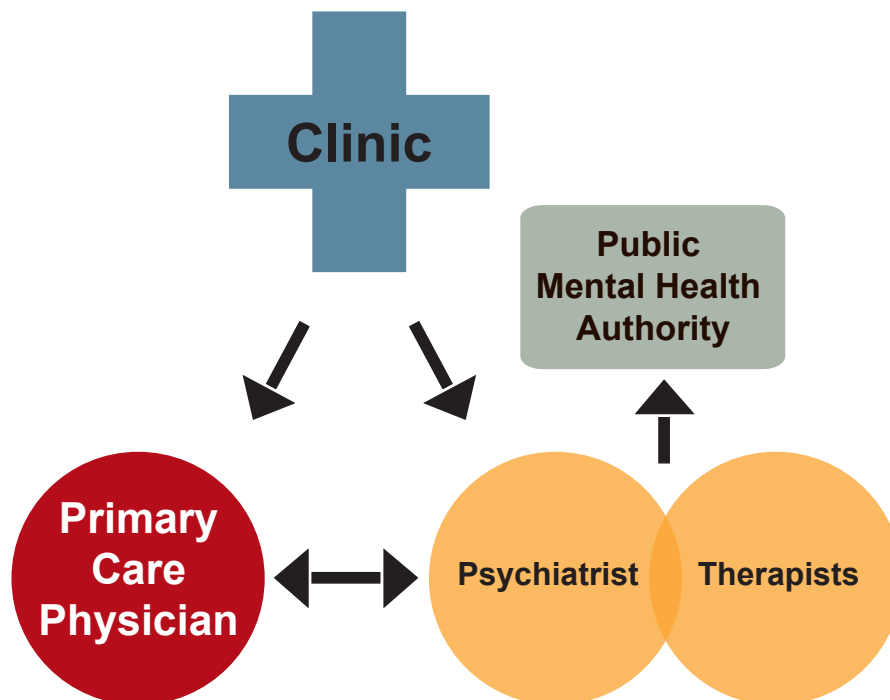
LSCC Adult IBH Program

Process/implementation

LSCC successfully implemented its adult IBH model in the summer of 2006. The mid-term, year-one and year-two reports provide detailed information on factors contributing to successful implementation and emergent barriers to implementation. In this third report we offer a brief summary of the program design, offer updates on implementation in the third year, describe LSCC plans for the future, and provide staff/provider perspectives on lessons learned regarding the provision of integrated behavioral health care.

Program Design

Lone Star Circle of Care (Georgetown Community Clinic) opened in 2002. It is located on University Blvd. in Georgetown, Texas. They initially offered a social services-based mental health model (case managers and licensed social workers). However, they have moved to a psychiatric model because a sizeable number of their patients present with serious mental disorders such as bipolar and schizophrenia which require a psychiatrist's expertise. With financial assistance from St. David's Foundation, LSCC hired a full-time in-house psychiatrist in May of 2006, Dr. Lucius Ripley. Dr. Ripley works full-time at the Georgetown clinic (four days a week). He also sees patients at LSCC's Round Rock clinic one day a week. However, he is still available to primary care providers at the Georgetown clinic through phone or e-mail. In the third year of operation the program was expanded to include an additional psychiatrist, Dr. Prenzlauer who provides services at the LSCC Round Rock location. Dr. Prenzlauer also provides oversight to the IBH program. In both clinics the psychiatrists' offices are on-site and close to the primary care staff and counselors which facilitates collaboration. The integrated health care model proposed and implemented by LSCC is displayed in the following diagram.



Patients are referred to the psychiatrist by the PCPs and/or the nurse practitioner. As with People's, patients referred to the psychiatrist are those whose mental health concerns are more complex than those easily treated by a primary care provider and/or counselor alone. However, once Dr. Ripley/Dr. Prenzlauer provide mental health services to these patients, they often see counselors in the clinic as well. Thus, unlike the model for People's, there is considerable overlap between Dr. Ripley's/Dr. Prenzlauer's patient population and that seen by the clinic counselors. LSCC also accepts referrals from MHMR. Because mental health services are severely limited in Williamson County, LSCC clinics are often the only resources available for residents with mental health concerns. Because the IBH program was designed for patients with serious mental health concerns (requiring a psychiatrist), longer term monitoring is needed. Thus the LSCC model does not specify a set number of sessions and patients are not formally discharged from the program. Rather patients (e.g. those with bipolar disorder) are treated similarly to patients with chronic long-term physical health problems (e.g. diabetes) and expected to be part of the system for a considerable time period.

Year Three Implementation

As discussed, the program saw a major expansion in its third year of operation. An additional psychiatrist, Dr. Prenzlauer was hired to offer the psychiatric IBH model to adults at the LSCC Round Rock Clinic and to provide administrative oversight to the IBH model. Greg Jensen, a Licensed Independent Social Worker, will join LSCC later in 2009, to provide administrative oversight to the LSCC mental health program. This oversight is critical given the rapid growth of the program. LSCC lost one of their therapists (Roxane Royalty), however, they were able to hire Jo-Allison Bennett, a LCSW as a replacement. This provides LSCC with four therapists for their IBH program (three child therapists and one adult therapist). LSCC also intends to expand its psychiatric services to include geriatrics and substance abuse specialties. They have hired Dr. Virginia Garay, a geriatric psychiatrist who will join the staff in July of 2009. Dr. David Schlager, a psychiatrist specializing in substance abuse, will join LSCC in late 2009. In sum, by the end of 2009, the LSCC IBH model will be staffed with four full-time psychiatrists, two part-time psychiatrists, and four therapists.

In general, the LSCC IBH expansion has been successful. Additional providers are helping to meet the demand for services posed by the large number of patients and to reduce patient waiting periods. In addition, LSCC's additions have helped them to address a wide array of presenting problems (e.g. substance abuse, geriatric). Finally, the new providers have been well received and appear to be enthusiastic about working with the new IBH model.

Another important change for LSCC is their partnership with Texas A&M. LSCC will operate five clinics and a pharmacy at the new Texas A&M College of Medicine (TAMCOM) medical school campus in Round Rock, Texas. These clinics will include adult and pediatric primary care, OB/GYN, a dedicated senior practice, integrated psychiatry and psychotherapy, and a 340b Class A Pharmacy. All of these units will operate in one building at the Texas A&M Round Rock campus, creating a 30,000+ square foot hub. The grand opening is planned for late 2009. Texas A&M medical students and residents will rotate through these clinics, and LSCC-employed providers staffing these clinics will be Texas A&M faculty members. This collaboration will help LSCC with recruiting and retention of providers, offer services to more underserved patients, and provide important training for future IBH providers.

While the third year expansion has strengthened the LSCC IBH program in many areas, it has also posed challenges. As programs grow it is often difficult to maintain consistency in the application of the model. One area that has proven difficult for LSCC in the third year is data collection and assessment. While data collection efforts in the Georgetown clinic continued to run smoothly, the Round Rock location was not able to keep up with the data collection demands in the third year. Baseline data were collected on patients but limited follow-up data on the adult Round Rock patients is available. Thus, we are unable to know whether the Round Rock

clinic has been able to replicate the improvements in mental health outcomes and physical health and functioning outcomes accomplished by the Georgetown clinic. However, LSCC hired Emily Padula to address quality control. Emily will help LSCC with data collection/assessment following the completion of this three-year evaluation. The NextGen system will also make data collection and assessment less time consuming and more integrated into established practices.

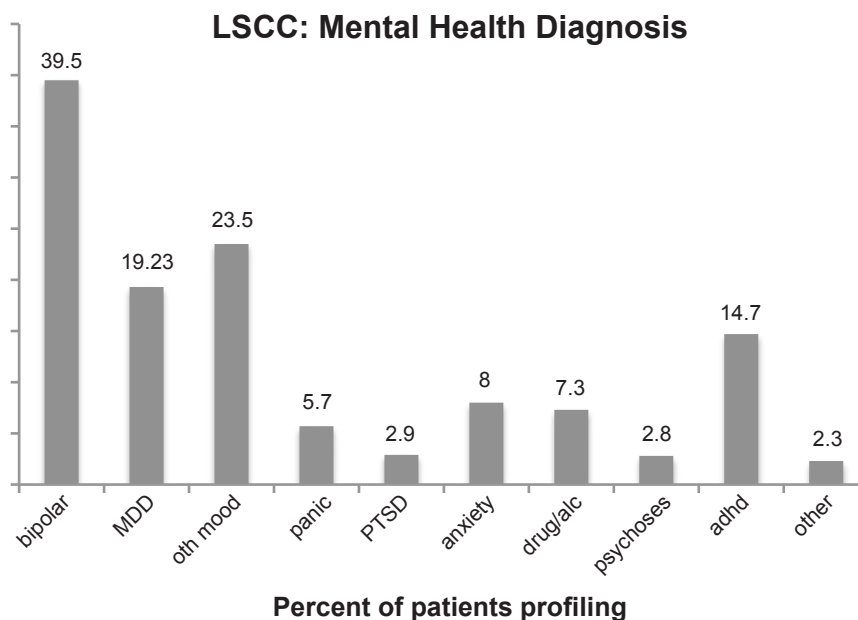
Another challenge for LSCC has been in recruiting and retaining therapists. Because of their psychiatric model and their partnership with Texas A&M, they have had much success in recruiting psychiatrists. However, LSCC has had more difficulty attracting therapists, which are needed to serve the large number of patients in the IBH program.

LSCC Patient Profile

Since May of 2006 the LSCC IBH program has served 1844 patients and provided 5626 in-person mental health encounters (3.05 average visits per patient). Table 5 provides a profile of the demographic characteristics of the patients participating in the LSCC IBH program. It reveals that the majority of patients are female (70%) and White (74%). The average patient is 36 years old.

Table 5: Demographic Profile of LSCC IBH Patients

Sex	Percent	Sample Size
Female	69.7	903
Male	30.3	392
<i>Average Age</i>	36	1,222
<i>Race/Ethnicity</i>		
White	73.8	708
Hispanic	18.9	181
African-American	6.0	58
Other	.9	12



The chart above reveals that the patient population is relatively heterogeneous in their mental health diagnoses (particularly compared to that of People's patients). The largest group of patients (39.5%) profile as bipolar. The next largest group presents with Major Depressive Disorder (19.3%). The diversity in this population is expected as the LSCC grant proposal specifically proposed a psychiatric model in order to address the large number of complex cases (such as bipolar) that were being referred to the clinic.

The Future of IBH at LSCC

LSCC has ambitious plans for its IBH program. LSCC strives to offer a comprehensive set of patient services. At the end of 2009 the LSCC model will be able to offer psychiatric services to serve the general adult community, children/adolescents, geriatric patients and patients presenting with substance abuse disorders. LSCC also intends to offer telepsychiatric services to provide access to mental health services for disenfranchised and isolated individuals. They also plan to expand services to military personnel, with a particular emphasis on serving returning veterans.

LSCC is developing a multi-disciplinary team of providers who will meet on a regular basis to consult on patient care and on challenging cases. This more formal consultation will better institutionalize the existing collaborative effort. It has also been suggested that the pediatric mental health providers be introduced to patients in the primary care setting in a more routine structured manner (e.g. to be present at OB/Gyn appointments, or perhaps at well-child checks). This will allow patients to become acquainted with the resources the mental health providers offer, to be less intimidated by the prospect of meeting with a mental health provider, to detect potential problems earlier, and to facilitate more in-depth collaboration between providers. LSCC is also exploring opportunities to expand collaboration to include hospitals and other clinics/organizations serving vulnerable populations. Finally, their partnership with Texas A&M provides another opportunity to allow practitioners, academics, and students opportunities to collaborate to improve patient services and outcomes.

Finally, LSCC is developing their internal assessment capabilities. As mentioned, they have hired quality control manager, Emily Padula, who has constructed a detailed assessment plan for the LSCC IBH program. This assessment plan will continue to track many of the same measures included in the St. David's evaluation, which will provide needed continuity in program evaluation. LSCC will track, a) the percent of patients who achieve a 5 point decline in PHQ-9 scores over time and, b) the percent of patients who experience a 50% or greater decline in PHQ-9 scores over time

The assessment will not examine primary care use over time and/or obtain SF12 data on patient self-reported overall functioning. These deletions are understandable as they are very time consuming for patients, practitioners, and evaluators, and cannot reasonably be sustained in the long-term. LSCC will provide a quarterly assessment of:

- psychiatric or substance abuse hospitalization
- incarceration
- homelessness and independent living
- competitive employment
- educational involvement
- stage of substance abuse

Staff/Provider Perspectives: Lessons Learned

As with PCC, exit interviews were conducted with LSCC staff and providers regarding their perspectives on how to implement an integrated behavioral health care model.

Factors Contributing to Success

Staffing is Critical: Appropriate staffing is a key to the success of the model. It is important not only to recruit qualified practitioners, but also to choose practitioners that are committed to the concept of integrated care. Practitioners who resist collaboration are not good candidates for the model. Those who see the benefit of and are willing to allocate time to collaboration are a good fit for the IBH program. LSCC has been fortunate to have staffed the program with practitioners who fit this profile.

Managing Program Growth: Another factor contributing to the success of the model is administrative oversight. The LSCC IBH program has grown considerably in the first three years of implementation. The program began with a single psychiatric provider (Dr. Ripley) who primarily practiced in the Georgetown location. However, by the end of 2009 LSCC will have several IBH locations, four full-time psychiatrists, two part-time psychiatrists, four therapists, and a partnership with Texas A&M. Dr. Prenzlauer serves as the LSCC Director of Mental Health, providing administrative oversight to the expanded IBH program. Dr. Prenzlauer is currently being assisted by Cory Roy and Greg Jensen will join LSCC in 2009 to provide more administrative assistance. LSCC has responded to the need to have close management of the growing IBH/mental health program. As program growth continues, this administrative oversight will be critical.

The Value of Evaluation: Several providers stated that they appreciated St. David's Foundation's commitment to evaluation. Having empirical data on patient progress helps staff/providers to better understand the overall accomplishments of the program and areas for improvement. It was also mentioned that evaluation data can be useful from a legislative/political standpoint. Those in a position to change policy/provide funding to increase the access and quality of health care for the underserved must be able to see a documented need and an agency's ability to meet that need. Thus, evaluation data is a critical component of program development and social change. This requires that evaluation be an ongoing process for LSCC and that the results of these data be distributed to a wider array of stakeholders and decision makers.

Program Challenges

Limited Community Resources: Staff/providers noted that the LSCC IBH program has been affected by the lack of health care services available in Williamson County. There is a lack of funding for medication, no county health department, limited MHMR resources, etc. This places a great deal of strain on the LSCC system to provide a wide range of mental health services to a large number of underserved patients. LSCC providers have a heavy patient load with a complex array of mental health conditions. To meet this need LSCC has grown considerably in the last three years. This growth has allowed them to provide services to more patients and reduce the waiting period for many Williamson county residents. However, rapid growth produces numerous challenges in the areas of funding, staffing, training, and coordination. Heavy patient loads also lead to longer waiting periods for patients. All of these challenges are currently being considered and addressed by LSCC.

Obstacles to Collaboration: There are some persistent obstacles to collaboration that warrant discussion. While the EMR makes much patient information accessible to providers, the flow of that information is largely from primary care provider to mental health provider, but not in the other direction. Because mental health information has unique protections, provider notes and detailed mental health information are not available in the electronic patient records. Thus, it is recommended that legal advice be obtained regarding the sharing of mental health information to determine if mental health data in the EMR can be expanded. For example, if PHQ-9 depression scores are considered a routine part of primary care, perhaps patient depression scores and their changes over time can also be made available to the primary care providers through the EMR.

Need for More Care Management: As the LSCC IBH model grows there is an increasing need for care management. LSCC has had much success recruiting psychiatric providers. However, they have had more difficulty in recruiting and retaining therapists. Therapists play an important role in the IBH model and thus discussion as to how to recruit and retain these professionals is warranted. In addition, the heavy patient load and long waiting periods for patients suggests that a higher level care manager position might be a useful addition to the model. A care management position could be used to screen patients on the waiting list. For less severe cases (patients with depression or anxiety disorder), care managers may be able to initiate (and perhaps sustain) treatment with a psychiatric consult. This would free psychiatrists/psychologist so that they might leverage their time more efficiently (e.g. focusing on complex patients such as those with bipolar). A care manager would also be able to provide patients with social support through phone follow-ups. Finally, by raising the responsibility level of one or more therapists to that of a care manager, the therapy/social support component of the model can have a more relevant place in the integrated behavioral health care team. This would enhance the multidisciplinary nature of the team and aid in recruitment and retention of caseworkers/therapists.

Pediatric Evaluation Poses Unique Challenges: The first two years of the pediatric program have revealed that pediatric IBH programs present challenges that are not present with adult IBH programs. The pediatric program has struggled with patient retention. This is because providers must work to obtain compliance from both the child/adolescent and their parent(s). Co-location of primary care providers and mental health specialists is particularly likely to increase access for the adult population, however, it is somewhat less effective for children and adolescents, whose mental health concerns have not yet made them heavy users of primary care. Thus pediatric providers suggested that pediatric IBH programs need to engage in community-based screening. LSCC is currently working with local schools, however, this connects providers with students but not necessarily children and their parents. Community outreach efforts may need to extend to churches and other organizations that might provide mental health professionals with greater access to children and their families. Finally, the pediatric program has struggled with assessment. The program initially adopted the BASC to assess patient outcomes. It is comprehensive, so it is able to capture the wide array of conditions presenting by patients (e.g. depression, ADHD, conduct disorder). It also provides instruments for three different age groups, which most assessment tools do not. Finally, it has been tested for reliability and validity. However, after working with the instrument providers concluded that it was too long to be a useful clinical tool or evaluation measure. A brief functioning measure (e.g. BIS/Brief Impairment Scale) was recommended as an alternative way to track patient progress.

Expansion and Program Fidelity: LSCC has clearly experienced dramatic growth, discussed throughout the implementation section. As mentioned, with growth it is often difficult to adhere strictly to the original IBH model. Growth has made collaboration, oversight, and data collection/management more challenging. Close attention to these issues is warranted as the program evolves over time.

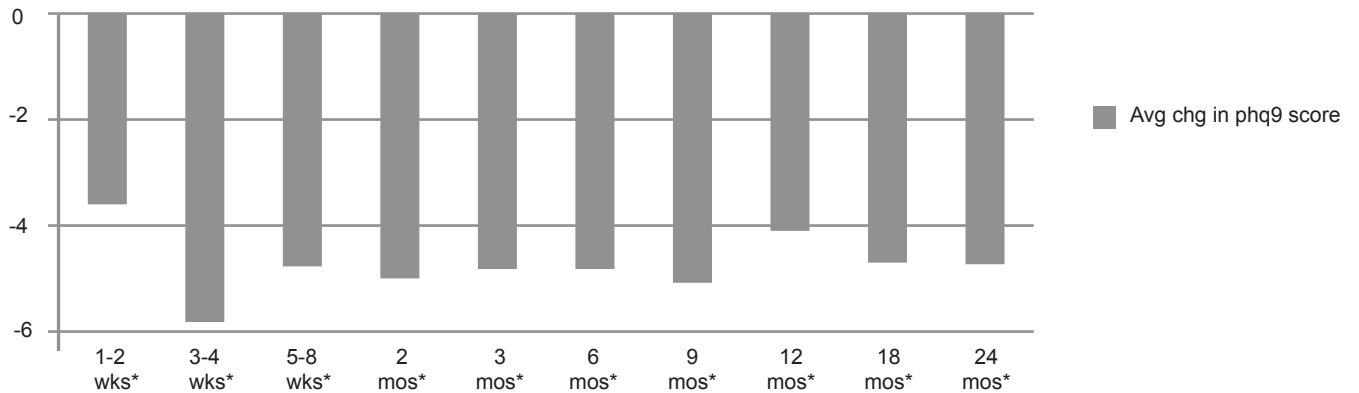
LSCC Outcomes

Improved Mental Health

Changes in Depression for LSCC IBH Patients

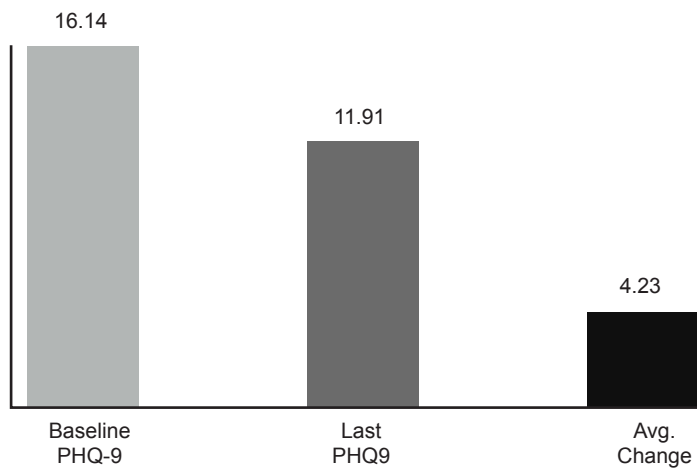
Because the patient population is so diverse we chose to examine depression scores over time for only those patients for whom depression is a symptom of their mental health condition (major depressive disorder, bipolar, and other mood disorders). The charts that follow provide information on the depression scores (PHQ-9 scores) for these patients in the IBH program.

LSCC: Change in Depression



The results reveal that patients in the program are seeing improvements in depression. Beginning at 1-2 weeks follow-up, patient PHQ-9 scores are significantly below the baseline measure for patients. While the magnitude of the change peaks at 3-4 weeks, these significant declines in depression scores are maintained for up to 24 months follow-up.

Pre/Post Depression Scores

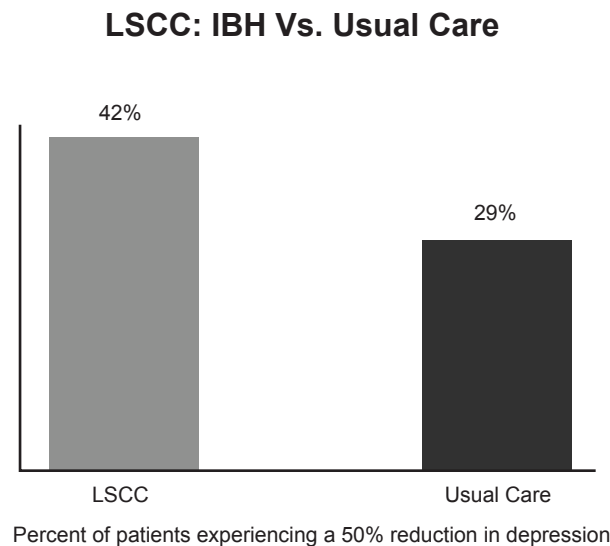


The data were also analyzed in terms of the first and last measurement of depression (pre/post scores). These analyses reveal that depression scores declined on average by 4.23 points. The average initial score of 16.14 is considered moderately severe depression whereas the post score of 11.91 is considered moderate depression. This is a statistically significant and substantive decline (26%). This is comparable to the declines reported in the year-one and year-two reports. It is also larger than that seen by other integrated programs such as E-Merge (3.2 point decline).

While only 8% of LSCC patients profile with anxiety disorder, LSCC did track OASIS anxiety scores for these patients. Over time these patients saw a significant decline in their anxiety scores. Patients averaged a 3.5 point decline or a 32% decrease in their anxiety scores over time.

Comparison to Patients in Usual Care

We also calculated the percent of LSCC IBH patients with major depression (diagnosis of major depression or PHQ-9 scores of 10 or higher) who achieved a 50% or greater reduction in their depression scores over time (by three months). This figure allows us to compare the achievements of the program with what could be expected from primary care alone (according to the literature).

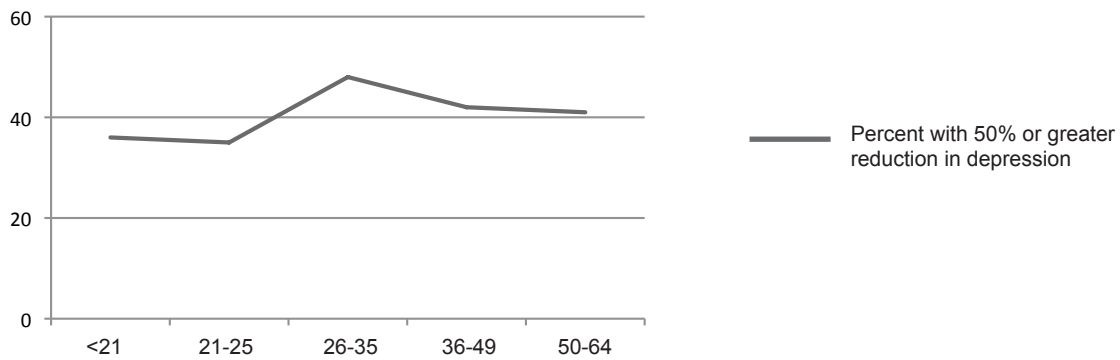


Results reveal that approximately 42% of LSCC IBH patients with MDD experienced a 50% or greater decline in depression. This is greater than the most common estimates of 29% for patients with major depression in usual care.^{31,32,33,34,35} It also meets (and slightly exceeds) the goal of 40% established by the Institute for Health Care Improvement for IBH programs.³⁶

Subgroup Analysis

PHQ-9 change scores were examined relative to demographic characteristics. There are no significant differences in mental health outcomes by sex or race/ethnicity. There were differences by age, that mirror the findings presented for People's Community Clinic. This analysis is summarized in the chart below.

LSCC: Mental Health Improvement by Patient Age



The patients with the least improvement are the younger patients, those 25 and younger. Patient progress appears to be greatest for those aged 26-35 and to decline slightly thereafter. While these differences are not dramatic, it is important to better understand how important demographic characteristics might interact with treatment so that treatment can address the unique challenges that face different groups.

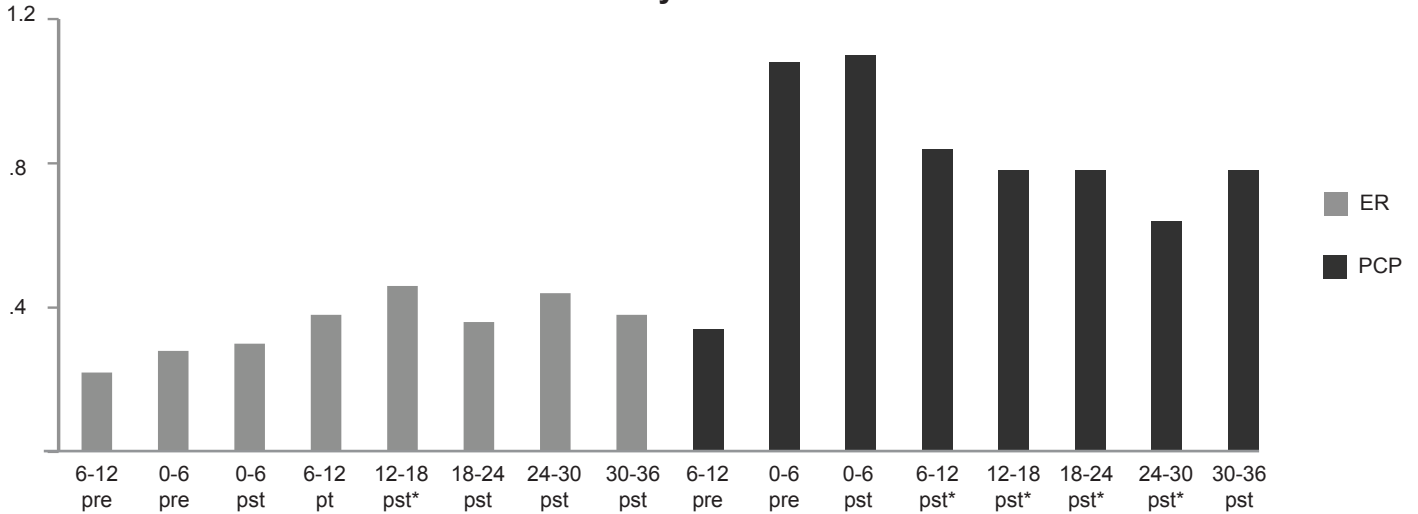
There were no significant differences in outcomes for patients with major depression and those with bipolar. For example, the average change for patients with major depressive disorder was 5.2 points and 4.99 for those with bipolar.

Improved Physical Health and Well-Being

Primary Care Utilization

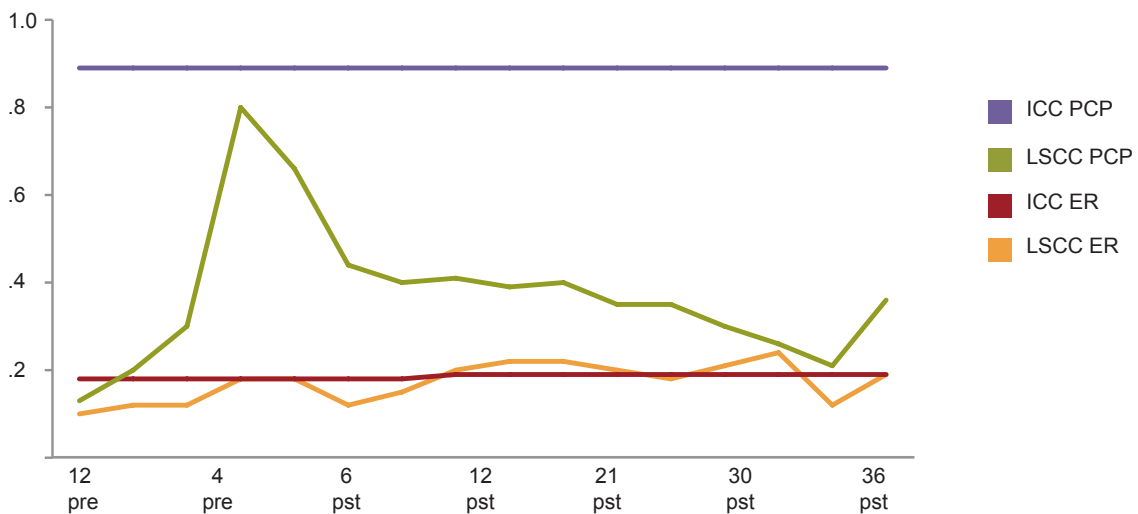
As with People's Community Clinic, ER, and PCP visits for LSCC patients were tracked before and after integration using the Indigent Care Collaboration's I-Care database. As previously discussed, many patients did not provide authorization to ICC to release their ER visits. This was a particular concern for LSCC because they only recently partnered with ICC and have not fully implemented the administrative procedures for data sharing. Only 52% of LSCC IBH patients gave ICC authorization to release their ER data. This is an improvement over year two when only 24% of LSCC patients provided authorization. However, with data on only half of patients, additional analyses for bias were needed. As with PCC, these analyses revealed that patients providing authorization are not a representative sample of LSCC IBH patients. Those who provided authorization had more PCP visits than those who did not provide authorization. We also found that PCP use is significantly correlated with ER use for the LSCC IBH patients. This suggests that an analysis of the 52% who provided authorization would likely over-estimate ER use of patients. To correct for this bias we used regression analyses to estimate missing ER visits using available PCP data. We feel this offers an improved analysis of ER use and substantially reduces the bias in the sample. However, because these are statistical estimates, they should be interpreted with caution. The following chart provides the average number of ER and PCP visits for IBH patients over time.

LSCC: Primary Care Use



The chart above reveals that ER visits did not decline in the post intervention period. At approximately 12-18 months follow-up ER visits actually increased significantly relative to the period before intervention. However, this increase did not persist and ER visits returned to the levels typical of the post intervention period and the period immediately prior to intervention. PCP visits did decline significantly at six to twelve months follow-up relative to the six month period before the IBH program. These declines in PCP visits were sustained through the second year as well. The chart below provides more detail on the changes in primary care use over time and how that compares to primary care use for a “typical” uninsured/underserved patient (e.g. from the ICC I-Care database). Again, the ICC figures have been statistically adjusted to correct for a tendency to overestimate use, and thus must be interpreted with caution.

LSCC: Primary Care Use Over Time



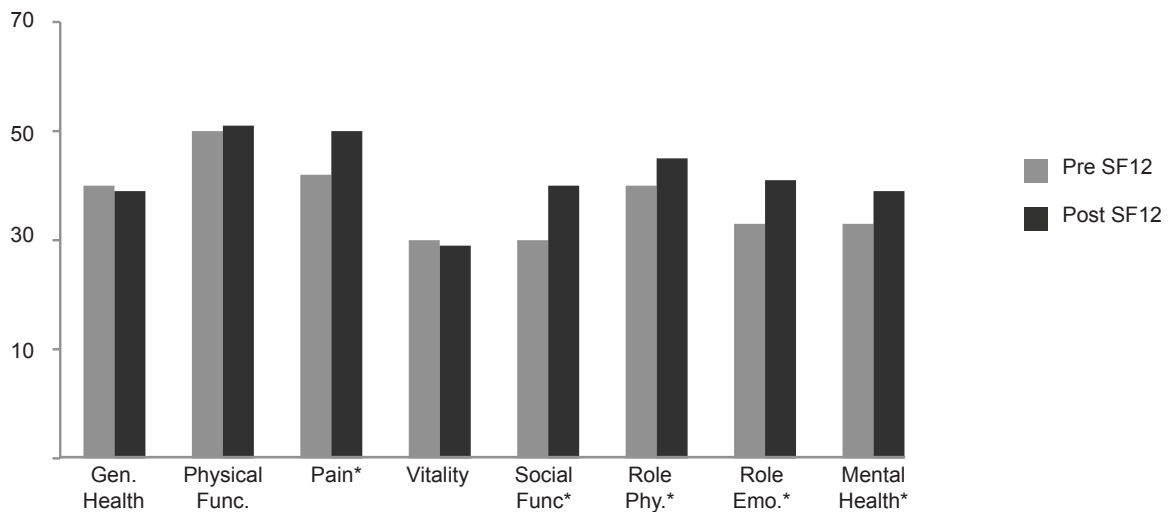
As with PCC IBH patients, LSCC IBH patients had escalating ER and PCP visits in the year before the intervention. Once the intervention began, PCP use rose slightly, then began a precipitous decline for most of the post intervention observation periods. For ER visits, use rose in the intervention period briefly, then remained stable for most of the follow-up observation periods. In general, PCP visits appear to have declined with the intervention whereas ER visits have, overall, not exhibited significant changes associated with the IBH intervention.

It is important to note how these IBH patients' primary care use compares to that of the average uninsured/underserved patient. At most time periods the LSCC IBH patients' ER visits appear to be comparable to that of a typical ICC patient. Thus, while they did not see significant declines in ER use, they were/are not necessarily heavy ER users. Regarding primary care provider visits, LSCC IBH patients can generally be described as "under-utilizers" of primary care (pre and post intervention).

Self-Reported Health and Functioning

In addition to primary care visits, self-reported patient health was also examined. Patients were asked to complete a brief survey on their overall health and functioning (SF12v2). Higher scores indicate better health/functioning in each area. The results are presented in the chart below. LSCC IBH patients report significant improvements in pain, social functioning, physical and emotional role functioning, and mental health. These results are an important supplement to the analysis of primary care use. According to the patients, their ability to do chores, perform daily activities, and socialize has significantly improved and their physical pain has significantly decreased.

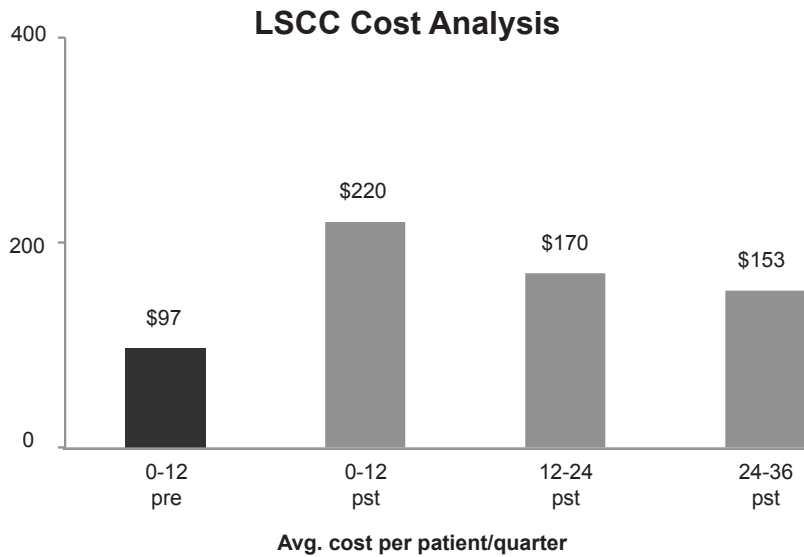
LSCC: Self Reported Health



*Significant change from baseline

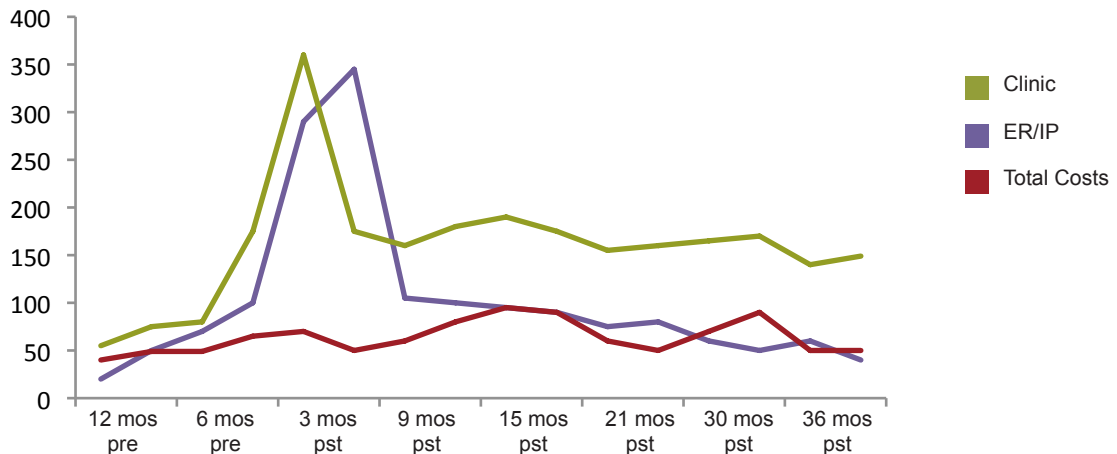
Cost Analysis

The results of the cost analysis are presented in the charts below. The first chart provides a comparison of the average costs per quarter for LSCC IBH patients in the twelve months before the intervention compared to the average per quarter costs for the period following the intervention.



As with PCC, patient costs significantly increased once they began to participate in the IBH program. Thus, consistent with the literature, the program does require an investment in the first year of operation. However, costs declined in the second year and again in year three. The following chart provides a more detailed chronology of costs, which offers additional considerations when interpreting costs.

LSCC IBH Costs Over Time



The line graph above reveals changes over time in costs that are similar to that presented for the PCC IBH program. It reveals that patient costs had been escalating in the 12 months prior to the program. Once beginning the program, costs continued to increase in the first three months of the program. However, costs began to decline in the three to six month period after program initiation. Because costs had been escalating before the IBH program, we do not know if the peak in costs is entirely attributable to the IBH program. In addition, costs declined significantly from three to six months post intervention. They then stabilized at levels that were far below that of the initial intervention. Thus, the program transposed the trajectory of escalating costs and can be considered an effective strategy of cost containment.

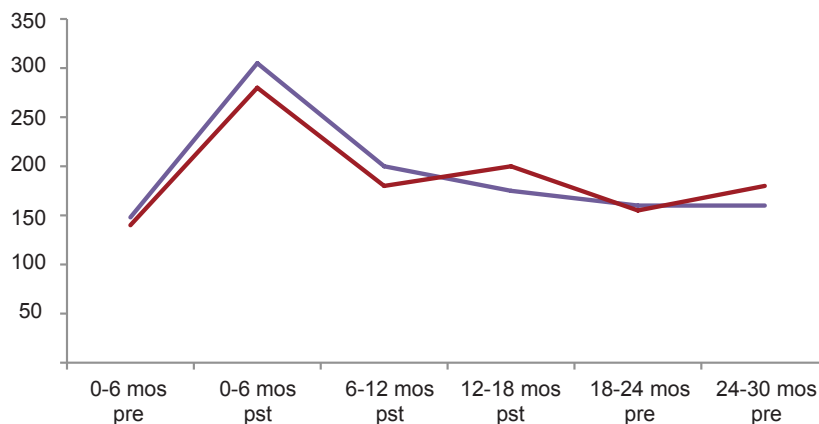
Table 5 below provides a brief summary of how costs in the post intervention period compare to that of the period before IBH was introduced. As discussed, costs were generally higher for IBH patients in the post intervention period. However, much of this involves providing not only mental health/psychiatric care to underserved patients, but primary care to patients without a medical home.

Table 5: LSCC Change in Costs Pre/Post IBH Intervention

Post intervention follow-up period	% Change relative to 12 mth period before IBH	% Change relative to 6 month period before IBH
Year 1 (average/quarter)	+127%	+71%
Year 2 (average/quarter)	+75%	+32%
Year 3 (average/quarter)	+58%	+19%

We also examined how costs changed for different subgroups. The chart below reveals costs for patients diagnosed with Major Depressive Disorder (MDD) relative to those diagnosed with Bipolar Disorder. The results reveal the same pattern for both types of patients, escalating costs followed by declines and a general pattern of cost containment. This suggests that even though bipolar patients are particularly difficult to treat, they have been as responsive to treatment and the IBH model as are patients with major depression.

LSCC IBH Patient Costs by Diagnosis





SUMMARY AND CONCLUSIONS

Background

In 2006 St. David's Foundation awarded funding to two clinics, People's Community Clinic and Lone Star Circle of Care. Both clinics provide primary care to indigent/underserved populations. These clinics proposed a new integrated behavioral health care model which offers mental health services on-site and in collaboration with primary care. These new models represent a more progressive approach to health care delivery, one that recognizes the interconnection between mental and physical health. The goals of the new integrated health care programs are to 1) More effectively meet the mental health needs of patients, 2) Improve the physical health and functioning of the patients in the program, and 3) Improve the efficiency of clinic operations. The funding provided by St. David's was used to assist these clinics with the implementation of their new health care models. St. David's also funded a process and outcome evaluation for the first three years of operation of the new models. This report presents the results of the evaluation at the end of year three.

People's Community Clinic: Process and Outcomes

In September of 2006 People's Community Clinic hired a Licensed Clinical Social Worker to assist them with the new program. This clinical care manager works on-site and in collaboration with the primary care physicians. In consultation with an MHMR psychiatrist, the care manager provides mental health services to patients who primarily have major depressive disorder. In the first three years the PCC IBH program has served 329 patients. Patients receive an average of four in-person visits and seven phone contacts. The transition to the new model was smooth. Staff report that the model has enhanced what the clinic can offer the community and allowed the clinic to operate more efficiently. The only persistent challenge for program staff is that the model is limited in its ability to address certain types of problems (e.g. substance abuse, psychosis). However, these program limitations are not considered significant barriers to achieving success with the model as proposed. Because PCC has been so successful in implementing the IBH model the year-three evaluation focuses on whether the program has been able to achieve its goals of improving mental health, physical health, and clinic efficiency.

Results reveal that the PCC IBH program is clearly improving the mental health of its patients. Patient depression scores have declined significantly and substantively relative to baseline and these declines were sustained through the 12 month follow-up period. The improvements in mental health also far exceed those that might occur from primary care alone. Existing literature suggests that approximately 29% of patients with major depression in usual primary care experience a 50% or greater reduction in their depression scores over time.^{33,34} Approximately 61% of patients in the PCC IBH program experience this level of improvement. This is a high success rate, particularly considering that the goal established for collaborative care by the Institute for Health Care Improvement is for 40% of IBH patients to achieve a 50% or greater reduction in depression.³⁵

A second goal of the IBH program is to improve physical health and functioning of patients. The evidence suggests that PCC is accomplishing this goal. Emergency room visits and PCP visits declined significantly in the post intervention period. At the end of program follow-up (24-27 months) PCP and ER visits were at their lowest point in the entire observation period (pre and post). In addition, IBH patients report that they have significantly better overall health, less pain, more energy, can accomplish more, and are more likely to socialize with friends and family than at the beginning of the program. One of the PCC providers offered the following example of how PCC IBH patients are benefiting from the program in terms of both mental and physical health improvements:

“One patient, a 76 year old immigrant from Nigeria, presented at the Clinic with severe depression with mild psychosis. She was very agitated, not sleeping and very fearful. Her family members were having to provide 24 hour supervision which resulted in her son-in-law having to frequently miss work. Physical symptoms were also present including hip pain that was making even walking very difficult. Her primary care provider referred her to the IBH program where she was quickly screened and an appointment set with Dr. Pelogitis. The patient responded quickly to a combination of Cymbalta and Zypreza. Her physical symptoms decreased as well – she is currently walking three miles a day! It was heartwarming for the entire IBH team when this elderly woman made a special appointment with her primary provider, Dr. Peavey, just to tell him in broken English ‘I feel good now. Thank you very much.’”

Finally, cost analyses were performed to determine if the program has been able to produce cost savings. The results of this analysis reveal that costs rose significantly in the first three months of program operation. However, costs began a precipitous decline which continued for the entire follow-up period. Costs in year two were 17% lower than those of the year before program initiation and costs in year three (first quarter) were 56% lower than average quarterly costs for the year before program initiation. Thus, while the program requires an initial investment, it ultimately produces cost savings.

Lone Star Circle of Care: Process and Outcomes

Lone Star Circle of Care adopted a different model of integrated care. In May of 2006 they hired a full-time psychiatrist to help them address the sizable number of patients presenting with complex mental health problems (e.g. bipolar). At the end of year three the program had served 1844 patients with three visits per patient. The new psychiatric model has been well received by staff and patients. It has faced challenges of a need for counselors and the difficulty in addressing the needs of such a large and complex patient population. In year two the LSCC IBH program expanded to include a pediatric component. Approximately 616 children/adolescents have been seen in the IBH program with an average of seven visits per patient. The pediatric program has struggled with patient retention and data collection. These challenges are typical of pediatric IBH programs, which present unique challenges relative to adult IBH programs. Despite the obstacles, both the adult and pediatric IBH programs have made significant progress towards their goals of improving mental health, physical health, and clinic efficiency.

The LSCC IBH program has significantly improved the mental health of its patients. Depression scores for patients have declined significantly and substantively. In addition, approximately 42% of LSCC IBH patients with depression have seen a 50% or greater reduction in their depression scores. This is greater than estimates for what could be expected with usual care alone (29%) and exceeds established goals for collaborative care (40%).^{37,38,39} While a relatively small sample of children/adolescents were available for outcome analysis, those who remained in the program and had follow-up assessments saw significant improvements in their behavioral symptoms, particularly externalizing behaviors such as anger and bullying.

The physical health outcome data for the adult LSCC IBH program present a more complex portrait. The program has not been able to significantly reduce ER visits. However, PCP visits post intervention were significantly below PCP visits for the period immediately prior to the intervention and below that of a typical uninsured/underserved clinic patient. Consistent with these declines, patients reported a significant improvement in their overall health, ability to do chores, perform daily activities, and socialize with family and friends.

A final goal of the LSCC IBH program was to improve efficiency. Results reveal that costs were escalating in the period before the IBH program was initiated. With the program, costs initially rose (requiring investment). However, costs quickly began to decline and then stabilized over time. There are several factors to consider when interpreting this cost analysis. First the LSCC IBH patients tend to be under-utilizers of primary care pro-

viders. Thus, it appears that the IBH program is attracting patients with complex mental health problems who have not had adequate mental health care and have been without a much needed “medical home” for addressing their physical health needs as well. This will of course represent an expense, however it appears to be a positive outcome that patients are receiving mental and physical health care who otherwise might not receive it. Thus, while the program has not produced savings (compared to the 12 month period prior to integration), it appears to be a sound investment, providing needed cost containment and increased access to primary care for a group of under-served patients.

In our subgroup analysis we found that the programs are unique in their ability to serve the most vulnerable within the indigent/underserved patient population. While both English and Spanish-speaking PCC IBH patients saw significant improvements in their depression scores over time, Spanish-speaking patients had a significantly higher rate of recovery. These are significant accomplishments of the PCC IBH program. It is well documented that Spanish-speaking patients are uniquely vulnerable in the health care system. Researchers have consistently revealed that their mental and physical health needs are overlooked, under-diagnosed and under-served.⁴⁰

The LSCC IBH program has also been successful in serving a vulnerable population, namely bipolar patients whose mental and physical health needs have gone unmet within the existing health care system. IBH programs that serve bipolar patients are very rare. In year one we saw that a large percentage of the LSCC IBH patients were bipolar but were drawn from outside of the LSCC clinic. In the LSCC IBH model we see that these bipolar patients are seeing a significant decline in their depression scores over time. We also saw from the qualitative analysis in both years one and two that bipolar patients previously misdiagnosed with MDD were those who saw the most dramatic improvements in their mental health, physical health and overall functioning. In the year one report a PCP offered the following quote as an example the types of patients the new IBH program has helped:

“There is a patient that everyone in the clinic knows. She would come in on a regular basis, was hyper, drug seeking, inappropriate, crashed her car. She was diagnosed with bipolar and with appropriate treatment has calmed down, is a manageable patient, and has gone back to work. Before she somaticized. She was convinced she had lupus, breast cancer, insisted on lab tests, convinced she had some condition. Since her diagnosis these behaviors have declined considerably.”

Conclusion

PCC and LSCC are quite different in their approach to integrated care, demonstrating that integrated care can take different forms. PCC created a social work model of care, which focused on patients with major depressive disorder. LSCC developed a psychiatric model of care, which served a broad and complex array of mental health conditions. Each program faced challenges related to their choice of model and services (narrow focus versus broad coverage). However, both programs were able to successfully implement their models and have a significant and positive impact on their patients. They have improved the mental and physical health of their patients and provided effective strategies for containing/reducing costs. Perhaps their most notable accomplishment is that they assessed their communities, identified unmet needs, and created a system of care that uniquely addressed those unmet needs. Because their models were based upon an understanding of their patients (rather than an ungrounded philosophy of care), PCC is one of the first IBH programs to successfully serve a Spanish-speaking population. Likewise, LSCC is one of the first programs to improve outcomes for a bipolar population. The programs undoubtedly benefit uninsured/underserved patients in their areas. However, they also break new ground in the field of integrated care. People’s Community Clinic and Lone Star Circle of Care, with the assistance of St. David’s Foundation, are demonstrating that integrated care can help not only the underserved, but some of its most vulnerable members as well.

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**Appendix A
(Instruments)**



- Mental Health History/Treatment

Patient Name: _____ Date _____
Diagnosis:

Has the patient ever been diagnosed with a mental health problem? Yes No

If Yes, what was the most recent diagnosis:

Was the most recent diagnosis made by a Mental Health Specialist or a PCP?
(Circle One)

If the diagnosis was made by a PCP, was the PCP from this clinic or a different clinic?

___ This Clinic ___ Different Clinic

Is your diagnosis for this patient:

- ___ The same as the previous diagnosis
- ___ Similar to but more specific than the previous diagnosis
- ___ Different from the previous diagnosis, specify _____

Has the patient previously received any mental health services? Yes No

If Yes, what were they:

Did the patient comply with treatment? Yes No

Mini mental status exam: Score: 0

Suggestive of an organic syndrome

Score Interpretation

0-22 Suggestive of an organic syndrome

over 22 - -

Ask patient "What is the year? Season, date, day, month"

- 0 out of 5 (0 points)
- 1 out of 5 (1 point)
- 2 out of 5 (2 points)
- 3 out of 5 (3 points)
- 4 out of 5 (4 points)
- 5 out of 5 (5 points)

Ask patient "Where are we? State, country, town, hospital, floor?"

- 0 out of 5 (0 points)
- 1 out of 5 (1 point)
- 2 out of 5 (2 points)
- 3 out of 5 (3 points)
- 4 out of 5 (4 points)
- 5 out of 5 (5 points)

Tell patient "I'd like to test your memory; say these words: boat, cucumber, wire"

- says 0 out of 3 (0 points)
- says 1 out of 3 (1 point)
- says 2 out of 3 (2 points)
- says 3 out of 3 (3 points)

Tell patient "Begin with 100 and count backwards by 7" Answers = (93, 86, 79, 72, 65)

- Cannot do it at all (0 points)
- Gets 1 right (1 point)
- Gets 2 right (2 points)
- Gets 3 right (3 points)
- Gets 4 right (4 points)
- Gets 5 right (5 points)

Tell patient "Can you name the three objects I named before?"

- Cannot do it at all (0 points)
- Gets 1 right (1 point)
- Gets 2 right (2 points)
- Gets 3 right (3 points)

Tell patient "Name these items" and point to a pencil and a watch

- Cannot do it at all (0 points)
- Gets 1 right (1 point)
- Gets them both right (2 points)

Tell patient, "Repeat the following: 'No ifs, ands, or buts.'"

- Does not say it properly (0 points)
- Says it properly (1 point)

Tell patient "Take a paper in your right hand, fold it in half, and put it on the floor."

- Does none of these 3 things (0 points)
- Does 1 of these 3 things (1 point)
- Does 2 of these 3 things (2 points)
- Does 3 of these 3 things (3 points)

Tell the patient "Read and obey the following:" and write "CLOSE YOUR EYES"

- Patient does not close eyes (0 points)
- Patient closes eyes (1 point)

Tell patient "Write a sentence"

- Patient does not write a sentence (0 points)
- Patient writes a sentence (1 point)

Draw interlocking pentagons, and have patient copy it.

- Patient does not copy the design properly (0 points)
- Patient copies the design properly (1 point)

Primary Care Mood Disorders Questionnaire

Your health care provider will help you score and understand this test when you are done.

1.	Has there ever been a period of time when you were not your usual self and (while not using drugs or alcohol) ...		
	...you felt so good or so hyper that other people thought you were not your normal self, or you were so hyper that you got into trouble? (circle yes or no for each line please)	Yes	No
	...you were so irritable that you shouted at people or started fights or arguments?	Yes	No
	...you felt much more self-confident than usual?	Yes	No
	...you got much less sleep than usual and found you didn't really miss it?	Yes	No
	...you were much more talkative or spoke faster than usual?	Yes	No
	...thoughts raced through your head or you couldn't slow your mind down?	Yes	No
	...you were so easily distracted by things around you that you had trouble concentrating or staying on track?	Yes	No
	...you had much more energy than usual?	Yes	No
	...you were much more active or did many more things than usual?	Yes	No
	...you were much more social or outgoing than usual; for example, you telephoned friends in the middle of the night?	Yes	No
	...you were much more interested in sex than usual?	Yes	No
	...you did things that were unusual for you or that other people might have thought were excessive, foolish, or risky?	Yes	No
	...spending money got you or your family into trouble?	Yes	No
2.	If you checked YES to more than one of the above, have several of these ever happened during the same period of time?	Yes	No
3.	How much of a problem did any of these cause you -- like being unable to work; having family, money, or legal troubles; getting into arguments or fights? No Problem Minor Problem Moderate Problem Serious Problem		
4.	Draw a line connecting any (blood) relative to any problem (this doesn't have to be neat): Grandparents Parents Aunts/Uncles Brothers/Sisters Children Suicide Alcohol/drug problems Mental Hospital Depression Problems Manic or bipolar		
5	Has a health professional ever told you that you have manic-depressive illness or bipolar disorder?	Yes	No

If the test says yes: for information about "mood swings without mania", now called Bipolar II, see: www.psycheducation.org. This is something to learn about, not necessarily about you.

If the test says no, antidepressants are okay. They can occasionally cause: unusual thoughts, including violent and suicidal ones; irritability; too much energy; and severe sleep problems. Contact your doctor if you think this might be happening to you.

Your Name _____ Today's Date _____ 7/y/"y"

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

Name: _____ Date: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems? (use “√” to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3

add columns: + +

(Healthcare Professional: For interpretation of TOTAL, please refer to accompanying scoring card.)

TOTAL:

10. If you checked off <i>any</i> problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

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