



Integrating Primary Care and Mental Health Services:

Final Evaluation Report on the ICARE Integration Pilot Sites

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Executive Summary

Evaluation scope

Numerous efforts around the country are trying to identify practice models that can integrate primary care and mental health services with the goal of improving the accessibility, quality, and outcomes of services for persons with mental illnesses who present in general medical settings. Locally, the North Carolina Foundation for Advanced Health Programs, Inc., in collaboration with several community partners, developed a three-year (2006-09) demonstration to do this at four pilot sites across the state. The ICARE – *Integrated, Collaborative, Accessible, Respectful, and Evidence-based* – project was supported by grants from AstraZeneca, the Kate B. Reynolds Charitable Trust and The Duke Endowment. This report presents results from an evaluation of the practice demonstration component of ICARE that was conducted by the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill. The evaluation was funded by the Foundation and the North Carolina Division of Medical Assistance. The evaluation examined both the processes of implementing integrated care at the four pilot sites through interviews and surveys with practice staff as well as the outcomes of care through an analysis of Medicaid claims data. Other aspects of the ICARE project including technical assistance to the participating practices, statewide trainings of human service providers, and efforts to promote policy changes were addressed by separate evaluations.

Main findings and conclusions

1. Implementation of integrated care

Surveys completed by staff at all four ICARE pilots indicated that, during the demonstration period, access to mental health care was improved by co-locating mental health providers within primary care practices, by decreasing the wait time between initial referral and a mental health appointment, by developing and implementing individualized care plans and clear lines of responsibility for follow-up, and by employing use of evidence-based diagnostic tools for depression and other psychiatric conditions.

Practice staff felt that ICARE was a beneficial program and that it was helpful to have a mental health provider co-located in the primary care practice. Many staff also said that patients found integrated care in the doctor's office to be less stigmatizing than going to a mental health clinic. Patients themselves reported often having difficulties communicating with primary care staff about their mental health needs and spoke positively about the co-located provider who explained treatments, reasons for prescribing medications, and medication side effects.

Both practice staff and mental health clinicians agreed that communication between them had improved and that they became more aware of community mental health resources that their patients could access. Various challenges were also identified including difficulties in identifying mental health clinicians to co-locate, too few days of co-located provider time, not enough time in busy medical offices to implement treatment algorithms, and restrictions in billing for co-located providers which threatened the sustainability of these arrangements beyond ICARE grant funding.

2. Outcomes of integrated care

ICARE patients at the Phase 1 pilots (East and West) had a statistically significant 3%-11% decrease in Medicaid-reimbursable outpatient mental health service use per quarterly period relative to patients in practices that did not participate in ICARE, whereas ICARE patients at the Phase 2 pilots had a 4%-12% increase in these services relative to control patients. For the most part, the increased access for ICARE patients came with greater increases in average per patient Medicaid costs relative to control patients in other primary care practices.

3. Conclusions

Staff and patients both saw improved access to mental health services and greater coordination between primary care and mental health providers during the ICARE integrated care demonstration. Pilot outcomes as reflected in Medicaid claims were more varied across the four pilots. The Phase 1 pilots (East and West) showed small but significant decreases (3% - 11%) in Medicaid-reimbursed outpatient and ED service use. Whereas the Phase 2 pilots (North Central and Southeast) showed small but significant increases (4% - 12%) in Medicaid outpatient and ED service use. These differences might be associated with the role of co-located mental health providers and with shared learning among pilots which accelerated implementation and billings at Phase 2 pilots.

Participating practices

The demonstration was implemented in four regions of the state in two phases. The Phase 1 sites were operative from September 2006-June 08 in the Asheville (West, 4 practices) and January 2007-June 2008 in Wilmington (East, 4 practices) areas; the Phase 2 sites were operative from September 2008-June 2009 in the Lumberton (Southeast, 7 practices) and Henderson (North Central, 2-5 practices) areas. Each of the four pilots was encouraged to select from a menu of integration approaches for their respective target populations—adults with severe and persistent mental illness (West), youth and adults with any mental illness (East and Southeast), youth and adults with mental health and substance abuse disorders (North Central). As a result each pilot had a different configuration of interventions, although co-location of mental health providers and use of evidence-based screening protocols were common strategies.

Evaluation methods

The process evaluation relied upon a series of self-report measures that asked practice staff to identify the levels of integration between their primary care and mental health services prior to, early on, and later in the two-year implementation period. In addition interviews were conducted with key participants at each pilot site early on and later in this period. A patient focus group was also conducted at each pilot.

The outcome evaluation relied upon a quantitative analysis of Medicaid claims data for each of the four pilot sites in comparison to all Medicaid patients in practices that did not participate in ICARE. A pre-post comparison group design was employed separately for each pilot site. Due to lag times in obtaining Medicaid paid claims data, the length of the post-period was limited to 12 months for Phase 1 pilots (East and West) and to 9 - 10 months for Phase 2 pilots (Southeastern and North Central). Outcomes focused on Medicaid expenditures for five service categories: outpatient mental health, total outpatient, emergency department, psychotropic drugs, and total services.

Implications

The ICARE project was successful in demonstrating the receptivity and endorsement of primary care practices in different parts of the state to integrated care arrangements. Medicaid claims analyses showed mixed results of increased access and Medicaid expenditures at some pilots and decreased access at others. This evaluation was unable to determine whether increased access led to improvements in patient health status due to reliance only on Medicaid claims data and a relatively brief 9-12 month follow-up period. Further, this evaluation was not able to assess the billing behaviors of participating clinicians or the longer-term sustainability of the integrated arrangements introduced at the primary care sites. Many of the participating practice staff, however, acknowledged that it would be unlikely for them to sustain integrated care under current Medicaid and other third-party reimbursement provisions. So although integrated care arrangements can be introduced into primary care practices, paying for them on an on-going basis is still a major problem. All of these issues remain important challenges to address in further efforts to integrate primary care and mental health services in North Carolina.

I. Introduction

This is a critical time for mental health service delivery in North Carolina. Despite efforts begun in 2001 to reform the public mental health system, the state lags behind most others in per capita expenditures on mental health and is currently experiencing a shortage of mental health providers.¹ State Medicaid agencies are faced with rising costs and budgetary reductions, public mental health services for many mentally ill populations are shrinking, and the burden of caring for patients with depression and other mental disorders is increasing on primary care practices across the state. Accordingly, there is a lot of interest and support for efforts to integrate primary care and mental health services to improve the accessibility, quality, and outcomes of care.

Mental health disorders affect approximately one in four Americans or approximately 57 million people nationwide.² Individuals with mental health disorders also experience comorbid physical conditions such as cardiovascular, pulmonary disease, diabetes, and arthritis. These individuals often use more health care services and have higher health care costs.³ In addition, individuals with mental health and physical comorbidities are more likely to see a primary care physician than a mental health provider. Literature shows that treatment of depressions and anxiety can be effectively treated in the primary care setting along with their comorbid physical health conditions.³ Unfortunately, primary care physicians often report feeling unprepared to diagnose or treat mental health disorders in the primary care setting.⁴⁻⁵ Other barriers to mental health integration also exist. Particularly, traditional delivery and payment structure of mental health and physical health services are often separate, leading to fragmented care for individuals receiving both mental and physical health services.⁶⁻⁷ Integration has the potential to increase collaboration between mental health and primary care providers, increasing the ability of primary care providers to provide high quality mental health care, and improving the ability of mental health providers to screen and refer patients for medical illness.

Responding to these needs, the North Carolina Foundation for Advanced Health Programs, Inc. in collaboration with several professional associations and partner agencies (NC Psychiatric Association, NC Academy of Family Physicians, SR-Area Health Education Center, and NC Pediatric Society) initiated a pilot program to demonstrate and assess models of integrating primary care and mental health services. The ICARE – *Integrated, Collaborative, Accessible, Respectful, and Evidence-based* – project was supported by grants from AstraZeneca, the Kate B. Reynolds Charitable Trust and The Duke Endowment. This report prepared by the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill presents results from an evaluation of one component of the ICARE program, the integrated care demonstration at four primary care pilot sites. Other aspects of ICARE including technical assistance to the participating practices, statewide trainings of human service providers, and efforts to promote policy changes were addressed by other evaluations.

Goals of ICARE Pilot Sites Demonstration

The goals of the ICARE integrated care pilots were to improve outcomes for patients suffering from mental illness and co-occurring mental illness and substance abuse disorders by increasing communication and collaboration between primary care and mental health providers and enhancing

their capacity to both make informed treatment decisions and provide appropriate care. The ICARE pilot interventions operated from 2006 through 2009 with Phase 1 running from 2006-2008 and Phase 2 running from 2007-2009. Four pilots composed of multiple primary care practices participated, two in each phase. Pilot sites had considerable flexibility in both the clinical population targeted and the ways services were integrated. Phase 1 sites were located in Western and Eastern North Carolina and Phase 2 sites were located in North Central and Southeastern North Carolina. A detailed profile of the four pilots is presented in Section II of this report.

Evaluation Scope

This evaluation examined both the processes of implementing integrated care at the four pilot sites through interviews and surveys with practice staff as well as the outcomes of care through an analysis of Medicaid claims data. Summary findings from both the process and outcome components of the integrated care evaluation are presented in this report. Other aspects of ICARE including technical assistance to the participating practices, statewide trainings of human service providers, and efforts to promote policy changes fell outside the scope of this evaluation.

The evaluation was conducted by the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill. The evaluation was funded by the North Carolina Foundation for Advanced Health Programs, Inc. and the Division of Medical Assistance, North Carolina Department of Health and Human Services.

II. Process Evaluation

The process evaluation focused on the activities that the pilot sites engaged in to integrate primary care and mental health services. Below we describe the characteristics of the four pilots, the methods used to assess the levels of integration achieved by each pilot during the ICARE demonstration, and the results of the process evaluation for each pilot.

Pilot Sites

A summary profile of the four pilot sites and the activities they engaged in to integrate primary care and mental health services is presented in Exhibit 1. Each of the four sites was encouraged to select from a menu of integration approaches for their respective target populations and local environments. As a result each pilot had a different configuration of interventions, although co-location of mental health providers and use of evidence-based screening and treatment protocols were common strategies. Highlights are presented below for each pilot.

The **Eastern Pilot** (Pender and New Hanover counties) operated under Phase 1 of the ICARE demonstration. This pilot focused on adults, children, and adolescents with any mental health diagnosis. The intervention co-located one psychiatrist in four primary care practices (two community health clinics and two pediatric/family practices) one day per practice per month. Primary care providers identified and conducted initial screenings then referred patients to the co-located mental health provider. The co-located psychiatrist assessed and evaluated patients as well as conducting on-site and telephone consultations with primary care providers. This pilot also developed screening and treatment algorithms for anxiety and ADHD, mental health resources and phone lists for patients, and conducted targeted education for primary care providers. Once the ICARE demonstration ended, some Eastern Pilot practices received co-location funding from Community Care of North Carolina (CCNC) or private Community Support providers to continue these integration services.

The **Western Pilot** (Buncombe and Henderson counties) operated under Phase 1 of the ICARE demonstration. This pilot focused on care management for adults with severe and persistent mental illness and high medical comorbidities. Participants had several years prior experience with care management for patients with depression and other psychiatric conditions in primary care practices and so had a shorter implementation learning curve than the other pilots. The site coordinator pre-identified target group patients through an analysis of Medicaid paid claims data for patients with chronic health conditions and mental health diagnoses. The intervention relied on two care managers (1 full-time and 1 part-time) to provide case management services. Care managers acted as a link between the four participating primary care practices and specialty mental health providers and targeted case management for patients (i.e. in-person visits, home visits and telephone consultations). This pilot also developed treatment algorithms for bipolar disorder and conducted trainings with local stakeholders on mental health disorders and other planning and implementation efforts. After ICARE ended, case management services were transitioned to a co-location grant from Community Care of North Carolina or private Community Support providers.

The **North Central Pilot** (Vance, Franklin, Granville, and Warren counties) operated under Phase 2 of the ICARE demonstration. This pilot focused on integration of substance abuse and mental health services in primary care. The intervention co-located one licensed social worker in three participating primary care practices (reduced to only two practices in year 2) for a total of four days per week. This person also served as the ICARE site coordinator. The social worker provided participating primary care practices with new screening tools, mental health referral forms and resources, consultations, and patient follow-up.

The **Southeastern Pilot** (Robeson county) operated under Phase 2 of the ICARE demonstration. This pilot focused on children, adolescents, and adults with any mental health diagnosis. The intervention co-located two psychiatrists (one adult psychiatrist and one child psychiatrist), four licensed social workers, and two licensed professional counselors in seven practices (five hospital based practices and two pediatric practices). The ICARE coordinator then served as the link between the mental health provider and primary care physician by informing the primary care provider where a patient was seeking mental health treatment and the type of treatment the patient received. She also served as a central contact point for patients. This pilot conducted targeted education and trainings for primary care staff, created a local advisory group, and a training manual on crisis management. This site received co-location funding from Community Care of North Carolina (CCNC) which overlapped with the ICARE pilot site demonstration.

Exhibit 1: Summary Profile of ICARE Pilot Sites

	Phase 1		Phase 2	
	East	West	North Central	Southeast
Location (county)	Pender and New Hanover	Buncombe and Henderson	Vance, Franklin, Granville, and Warren	Robeson
Number of Practices	4	4	3 ^a	7
Total Patients in Practices	20,980	38,187	6,644	23,841
Target Population	Adult and Pediatric	Adult	Adult and Pediatric	Adult and Pediatric
Target Diagnosis	All mental health diagnoses	SPMI with High physical health needs ^b	Substance Use, Depression, Anxiety ^c	All mental health diagnoses
Type of Co-located Provider	Psychiatrists	Care managers	Licensed social worker	Psychiatrists and Behavioral Health Specialists
Integrated Care Activities	<p>Educated primary care providers on guidelines for screening/treatment of adult anxiety and ADHD in children</p> <p>On-site mental health assessment, consultation and treatment and telephone consultation to primary care</p> <p>Developed treatment algorithms on anxiety and ADHD, and resource tools and phone numbers for patients</p>	<p>Targeted case management including in-person and home visits and telephone consultation</p> <p>Round table sessions for stakeholders on communication, cross-training, and planning/implementation efforts</p> <p>Trained on Depression, Bipolar and Metabolic Syndrome</p> <p>Developed of treatment algorithm for Bipolar disorder</p>	<p>Trained PCP in screening and evidence-based practice for mental health disorders.</p> <p>Trained local mental health and primary care stakeholders on Domestic Violence, Edinburg Postnatal Depression Scale, and referral process for mental health services in primary care</p> <p>Created specialized consent forms and encounter tracking tools</p>	<p>Provided case management/ coordination to ensure continuity of care and feedback to primary care</p> <p>Created local advisory group on mental health and primary care oversight, training and education.</p> <p>Developed training manual for use of crisis management services and disseminated to primary care practices</p>

^a Began with 3 ICARE funded practices in 1st year, but reduced to 2 practices in June 2008

^b Quadrant IV (Hi Mental Health/ Hi Medical Needs) of the Four Quadrant Model⁸

^c Quadrant I (Lo Mental Health/Lo Medical) of the Four Quadrant Model⁸

Methods

Four data collection activities were used in the process evaluation to measure the activities undertaken to integrate care at each pilot site and to assess changes in the levels of integration at each pilot site during the ICARE demonstration period.

Dimensions of Integration Survey (DIS): The DIS (see Appendix D) is a self-rating by staff at each ICARE practice on multiple dimensions of mental health-primary care integration. These ratings described starting and ending points at each practice with regard to the multiple ways clinical services and supporting activities were used to foster integration. Eight dimensions were assessed at three points in time: treatment patterns, use of clinical algorithms and best practices, crisis assessment services, physical proximity, temporal proximity, communication, patient care, and appropriate care. The DIS was completed in a group interview with primary care practice staff. Group interviews included at least three members of the primary care practice with at least one primary care physician, the co-located mental health provider, and one other member of the primary care office staff. The use of group interviews to complete the survey was meant to capture consensus impressions within the practice on each question. Practices completed the DIS at three points in time at six-month intervals. Analysis of survey responses focused on changes in the levels of integration

Integration Activities Assessment (IAA): The IAA (see Appendix E) was completed by each ICARE pilot site as part of their quarterly reports. The purpose was to capture the type and frequency of activities that reflected the integration of primary care and behavioral health at each pilot. Activities included number of patients treated, number of consultations between behavioral health providers and primary care staff, and time spent by behavioral health providers on-site. ICARE sites submitted counts of these contacts on a quarterly basis during the 2007-2008 fiscal years.

Semi-Structured Interviews (SSI): The purpose of the SSI (see Appendix F) was to assess stakeholder experiences and perceptions towards the end of the two-year pilot regarding ICARE implementation, pilot accomplishments, and barriers. Four stakeholders from each pilot participated in individual 30-minute interviews at one point in time towards the end of the pilot. Stakeholders included a primary care provider, mental health provider, ICARE coordinator, and a primary care office staff member. Stakeholders provided their perceptions about the distinctive model employed at each site, changes that occurred to the model or its themes in the implementation, and major barriers and facilitators of change related to the ICARE project. Interviews were summarized by strengths, weaknesses, and limitations of the ICARE project reported by two or more respondents at each pilot.

Patient Focus Groups: The purpose of the patient focus group was to assess patient perceptions of the care received, how their behavioral and physical health needs were addressed, and their overall satisfaction with care (see Appendix G). Flyers were mailed to each patient who visited an ICARE provider during the pilot inviting their participation in the patient focus group. Two sites included child/adolescent target populations; therefore, parents/caregivers were invited to participate on behalf of their child. Two focus groups were conducted for each pilot site. Due to a delayed start for the evaluation, the first focus group occurred approximately a year and a half after start-up for the Phase 1

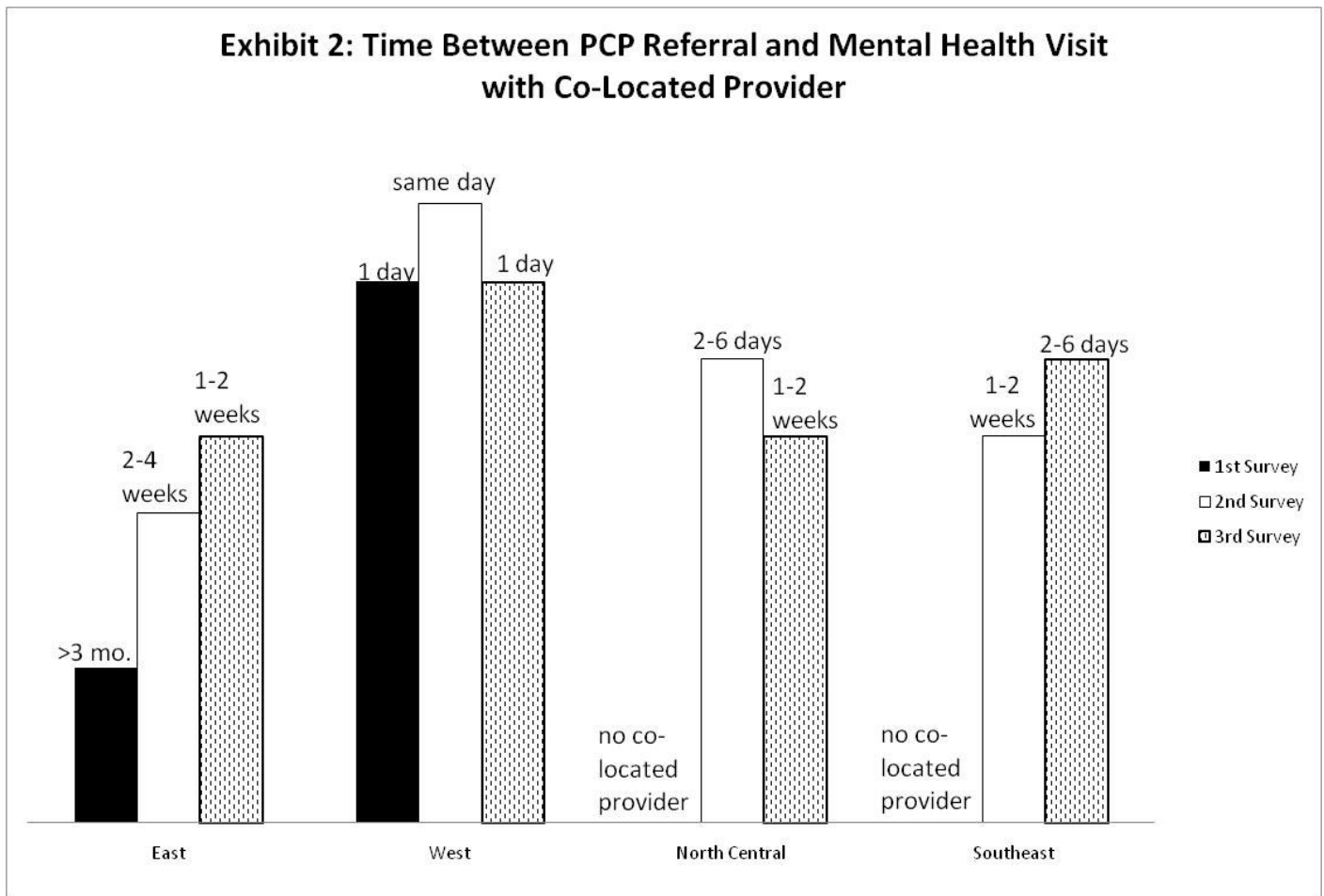
(November 2007/January 2008) pilots and approximately nine months after start-up for the Phase 2 pilots (March/April 2008). The follow-up focus group occurred approximately six months after the first focus group during the final month of the pilot for Phase 1 and the follow-up focus group occurred in November/December 2008 for Phase 2.

Results

For the most part, these findings on implementation process have been previously reported to the Foundation and the Division of Medical Assistance. They are highlighted and summarized here to provide a context for the outcome evaluation of ICARE which is presented in Section III of this report.

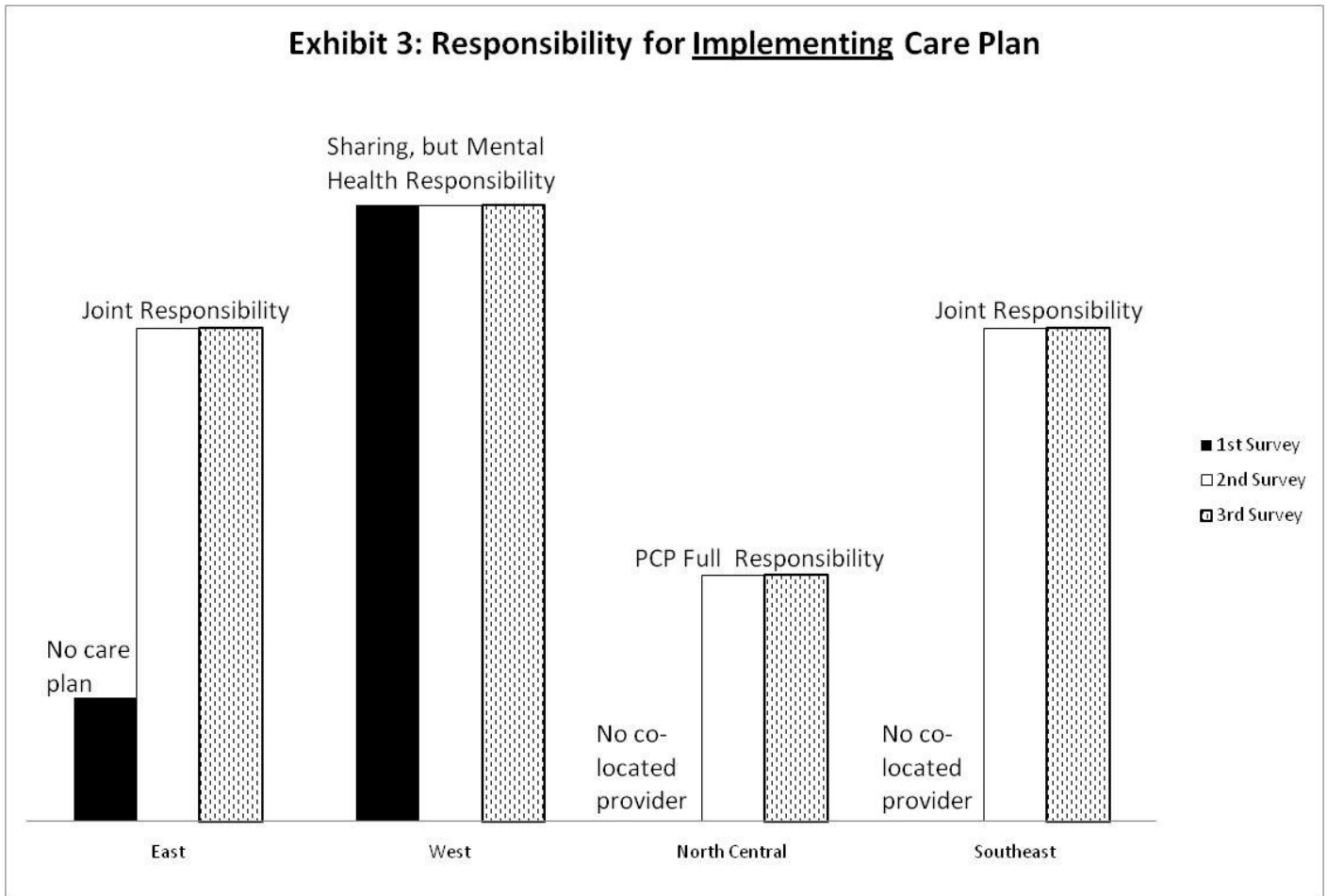
Dimensions of Integration: The results presented here focus on four elements of the eight dimensions of integration captured in the surveys: temporal proximity, patient care, follow-up responsibility, and clinical algorithms/best practices. These four dimensions are key elements of integrated care as discussed in the literature.

The temporal proximity dimension (Exhibit 2) represents the typical time between the primary care physician’s initial referral and the patient’s first visit with the co-located mental health provider. All ICARE pilot sites improved in this dimension as exhibited by the decrease in time between the initial referral and the mental health appointment. Each of the ICARE pilots, except the West, significantly

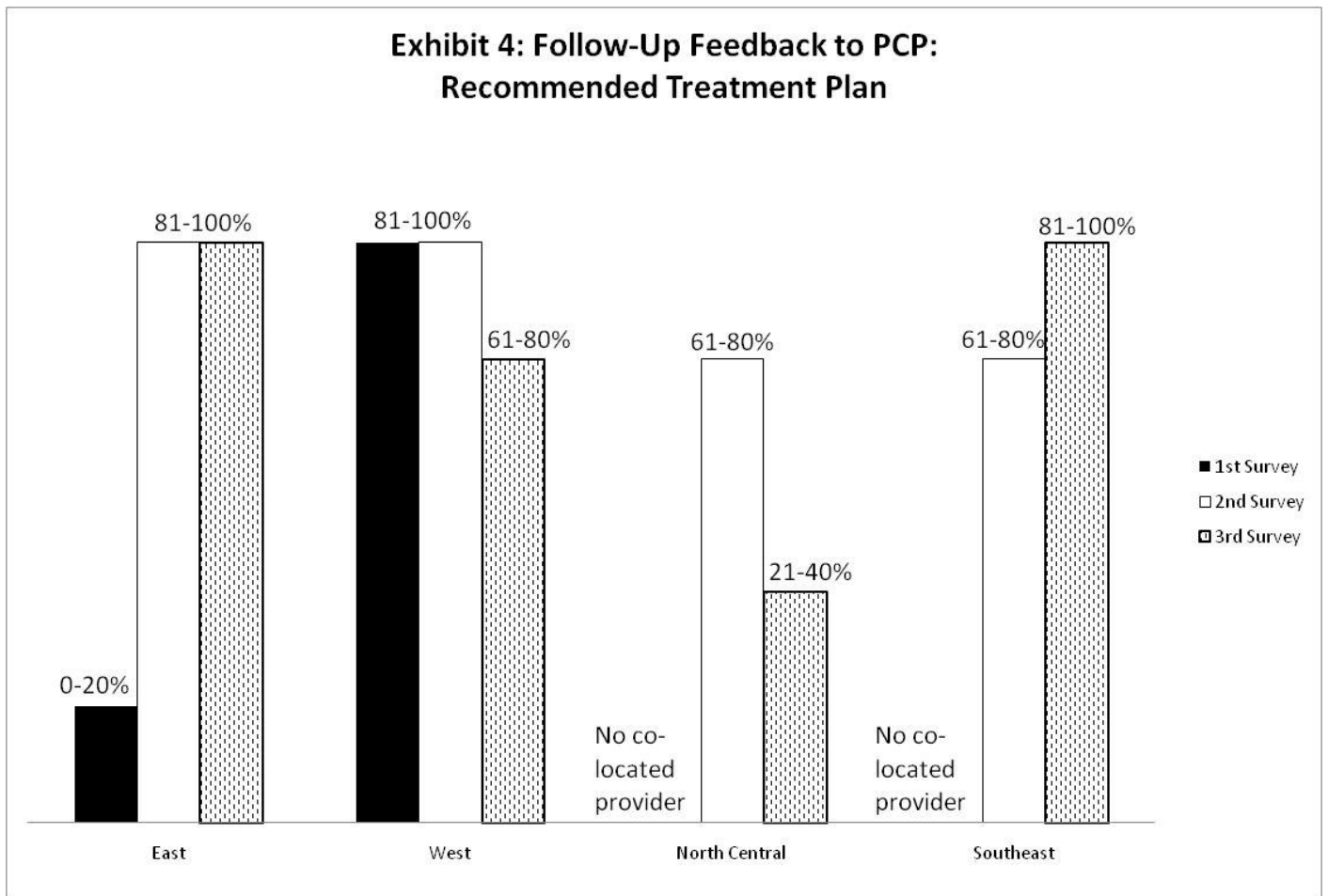


reduced their time between appointments from having no co-located provider or having more than three months between appointments to approximately 1-2 weeks between appointments. The West pilot had the least room for improvement on this dimension because, at the outset of the demonstration, they were already at “only 1 day between visits” and they could only improve to “same day visits”. This profile suggests that, across all sites, the ICARE demonstration did improve patient access to mental health providers by co-locating providers within primary practices.

The patient care dimension (Exhibit 3) represents information on individualized care plans, care plan implementation, and follow-up responsibility. Exhibit 4 specifically shows the results of who took responsibility for implementing the individualized care plan. The East and Southeast sites took a mental health and primary care provider joint responsibility approach to implementing the plan, which was a change for these sites from having no care plan at all at the first survey point. As with Exhibit 3, the Western pilot already had experience with co-location and a shared responsibility approach at the outset of the demonstration, but with the start of the ICARE demonstration, the mental health provider took the primary role in implementation. The North Central site ended up with the primary care provider taking full responsibility for implementing the care plan, an arrangement that was consistent with difficulties in recruiting a mental health provider.



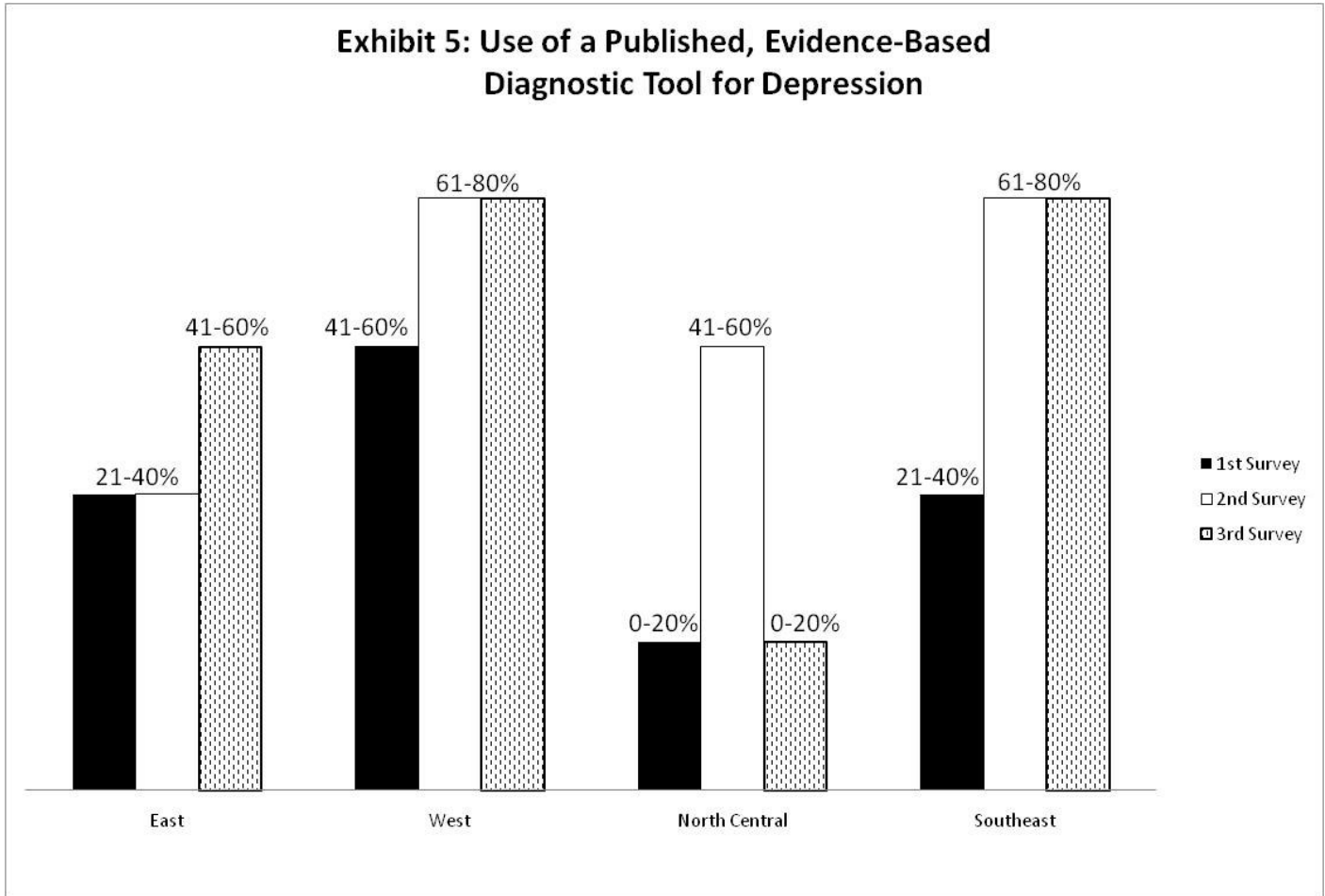
One aspect of the communication dimension is follow-up feedback (Exhibit 4) which reflects the frequency with which the co-located mental health provider gave feedback to the primary care provider about the recommended treatment plan. The East and Southeast exhibited the greatest improvements over the three survey points by going from feedback none of the time to 81-100% of the time. As with the previously discussed dimensions, the results in the North Central site were affected by their challenges with finding co-located mental health providers for the primary care practices. The second survey point was the only time during the evaluation period when there was a co-located provider consistently in the practices and, as with the previous exhibits, was the survey point where we observed the most improvement in follow-up feedback on the recommended treatment plan.



The clinical algorithms/best practices dimension (Exhibit 5) represents the frequency that primary care providers utilized a published evidence-based diagnostic tool for an array of disorders. Figure 4 reflects the frequency that primary care providers used an evidence-based diagnostic tool for depression. Three of the four pilot sites increased their use of evidence-based diagnostic tools for depression by the final survey point. The Western and Southeastern sites increased their use of these tools to 61-80% of the time while the Eastern site increased their use to 41-60% of the time. Some sites described the use of the evidence-based tools as too cumbersome for a brief intervention or 15 minute

office visit, which may have limited the use of the tools. At the North Central site, there was an increase in the use of the tools in the second survey point to 41-60% of the time, however, when the third survey was taken, the site was experiencing turnover of the co-located mental health provider and may have affected the use of evidence-based tools.

Participant Interviews: Overall, stakeholders at each pilot discussed many of the same strengths, but the limitations show the unique challenges each of the pilots faced in implementing integrated care (Exhibit 7). Most all of the stakeholders said that (1) the ICARE demonstration was a beneficial program



and (2) it was helpful to have a mental health provider co-located in the primary care practice. Stakeholders in the East, North Central, and Southeast pilots said that it decreased the stigma of mental health by accessing mental health services through the primary care provider's office since it was a place they were already familiar with and had a trusting relationship with the primary care provider. From the provider perspective, ICARE increased knowledge of mental health services, and community mental health resources to primary care physicians and their staff that did not exist prior to ICARE. Primary care offices were given resources about the LME, crisis information, and clinical guidelines that they were not aware of previously. Further, stakeholders said that ICARE helped to improve the communication between the primary care provider, mental health provider, and case manager that had not occurred

previously. At some sites, ICARE case managers were able to communicate in real time with the primary care providers and, thereby, were able to connect primary care providers with community resources regarding specialty mental health services.

While there was agreement across the sites about the strengths of the ICARE efforts to integrate care, there was less agreement about limitations. However, one limitation discussed by nearly all stakeholders at all sites was concern about sustainability. Stakeholders discussed the need for continuous funding because “. . . it took up to six to nine months to start a program, but when funding ends, the program ends as well.” They all spoke to the problems of trying to maintain a nucleus of support without funding or a way for billing integrated services once the pilot project ended. Another common challenge was finding mental health providers to co-locate in the primary care practices. In the East, a rural/suburban area, the co-located provider was not available frequently enough which limited her ability to see patients often enough and, in turn, this limited the primary care physician’s ability to utilize the co-located provider’s services. By the time the co-located provider was available, the primary care provider had already addressed issues with other resources or referrals. At the North Central site, a rural/suburban area, finding a co-located provider proved to be one of their most significant challenges. The ICARE coordinator, who was also a licensed social worker, ended up serving as both the coordinator and co-located provider because they could not find anyone to serve as the co-located provider. She had to discontinue services to all three of North Central’s practices as the co-located provider in August 2008 because of her excessive workload. In her absence, a backup served one of the practices.

Exhibit 7: Strengths and Limitations of ICARE Pilot Sites Demonstration Identified in Semi-Structured Interviews with Stakeholders ^a

		Phase 1		Phase 2	
		East	West	North Central	Southeast
Strengths	Educated primary care providers and staff about mental health services and use	ICARE case manager was able to access and update electronic medical record	Improved care – patients only need to visit one office for primary care and mental health care in an environment they were already familiar	Innovative, beneficial program that helped identify patients at an earlier stage of illness	
	Helpful to have person co-located in the office	Improved communication between case managers, primary care providers and mental health providers	Primary care has new directory of community mental health services	Bi-monthly collaboration team meetings to address concerns and implementation issues	
Limitations	Co-located mental health provider not often available enough	Confusion about the programs, referrals and which patients belong in ICARE	Lack of mental health providers in the region to serve as a co-located providers	Difficult educating clinic staff about referral process, charting and billing; required frequent retraining	
	Clinical guidelines/ algorithms were too complicated and cumbersome	Lack of continuous funding to maintain efforts; leads to frequently starting and	Unsustainable without continued funding support	Need to address billing and funding issues to maintain coordinated	

Limitations	Preferred the use of a mid-level mental health provider rather than a psychiatrist	stopping a program when funding ends	Lack of initial infrastructure for procedures and protocols, including consent and confidentiality issues Scheduling difficulty due to limited availability of co-located provider	care at same levels
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^a Information presented in the table reflects comments made by two or more stakeholders

Patient Focus Groups: Two common themes were identified across all patient focus groups: (1) communication, and (2) access (Exhibit 8). Communication was a common issue at all of the focus groups. The primary issues for patients were a lack of communication between their providers and not feeling like their primary care providers truly listened to their health concerns. Several patients discussed their frustration that providers did not communicate with each other often enough. Those patients made sure they updated their mental health and primary care providers about changes in their care or health conditions because the patients felt that, otherwise, their mental health and primary care providers would not be aware of issues, such as changes in medication dosages. Several patients also discussed problems communicating with their primary care provider about their mental health concerns. There was a feeling that their mental health concerns were brushed aside or referred to the mental health provider as part of their mental health diagnosis without really listening to the patient’s concerns. Some patients did discuss positive communication experiences, primarily with the co-located mental health provider. Those patients who had positive communication experiences attributed them to the co-located provider who explained treatments, reasons for prescribing medications, and medication side effects.

Access to services and resources were also common issues across all sites and focus groups. Common access problems mentioned at both pilot sites included access to accurate referral information from primary care providers and lack of access to the same primary care or mental health provider over time. Several patients expressed frustration at the difficulty of retrieving accurate information about community resources and provider information from their primary care provider’s office. The major difficulty was that information about resources or referrals was not readily made available unless patients explicitly asked for it. When provided with the information, patients’ thought it was extremely helpful towards accessing providers and community resources, and important towards improving their mental health. Several patients also discussed difficulty in finding providers in their communities willing to see Medicaid or uninsured patients. Additionally, patients at the North Central and Southeast sites specifically said they had or would go without services if their provider stopped accepting their insurance. Several patients also discussed difficulty finding providers with whom they could establish a rapport and maintaining those relationships over time. Patients at all of the sites were frustrated that facilities in the community had closed or that providers left, which disrupted their access to mental

health services. (Note: Patients here were referring to the dislocations that occurred during state-level mental health reforms in NC where public mental health agencies were divested of direct care services, which were transitioned to networks of private providers. See The News & Observer [Mental Disorder: The Failure of Reform Series](#).⁹)

Exhibit 8: Patient Focus Groups: Summary Themes

	East	West	North Central	Southeast
Communication	<p>Providers do not communicate with each other</p> <p>Difficulty communicating with primary care providers and staff</p>	<p>Primary care disregards symptoms as related to mental health conditions</p> <p>Primary care could not recognize mental health conditions</p> <p>Providers did not communicate with each other (improved at follow-up)</p>	<p>Co-located mental health provider does a good job of explaining treatment plan</p> <p>Primary care overemphasizes use of medications without explaining reason for prescribing or side effects</p>	<p>Slow communication with parents and patients about initial intake, cut services, and providers leaving</p> <p>Past providers did not communicate with parents or patients about symptoms or treatment concerns. Current providers are better at communicating with patients and parents</p>
Access	<p>Difficult to find providers willing to take Medicaid and children</p> <p>Incorrect information about referrals and community resources</p> <p>Medicaid policies about appointment scheduling in the same day and practice</p> <p>Lack of access to consistent providers</p>	<p>Decreasing number of providers and services supporting the area</p> <p>Difficult to create consistent relationships and rapport with providers</p>	<p>Good access to co-located mental health provider with regular appointments</p> <p>Lack of mental health providers in the community. Some facilities closed and some providers unwilling to take Medicaid</p>	<p>Not enough providers for patients in the community (in general) and not enough providers for uninsured.</p> <p>Difficulty accessing services because of transportation issues</p>
Mental Health Care Improvements	<p>No positive improvements at first focus group</p> <p>Some positive improvements at follow-up due to patients improved navigation of the system</p>	<p>No positive improvements or has gotten worse between first and second focus groups due to reduction or closing of services in community</p>	<p>Some improvement and some have gotten worse. Gotten worse due to clinician turnover</p>	<p>Mental health care stayed the same – no improvement, but care has not gotten worse</p>
Number of Participants	<p>Focus Group 1= 7</p> <p>Focus Group 2= 9</p>	<p>Focus Group 1= 8</p> <p>Focus Group 2= 13</p>	<p>Focus Group 1= 3</p> <p>Focus Group 2= 6</p>	<p>Focus Group 1= 3</p> <p>Focus Group 2= 4</p>

III. Outcome Evaluation

The process evaluation focused on what the pilot sites did during the ICARE demonstration, that is, the variety of activities that were undertaken at each pilot to promote primary care and mental health services integration. The results presented in the previous section about these activities indicate that both providers and patients believed that services were improved during the ICARE evaluation. The questions asked by the outcome evaluation are: “How effective were these activities? Did patients at the four pilots experience greater access to quality care during the demonstration?” To answer these questions, data on actual patterns of service use are required to confirm staff perceptions and endorsements.

Rationale and Overview

The common goal for the four ICARE pilots was to serve all target group patients in participating practices regardless of payer source. So patients on Medicare, Medicaid, private insurance, as well as those paying out-of-pocket were all included. However, from the outset of the ICARE project, the Advisory Board recognized that the evaluation budget was inadequate to conduct a prospective study to answer these outcome questions for all patients at the four pilots who were exposed to integrated care during the ICARE demonstration. Prior to undertaking the evaluation, the Sheps Center was commissioned to design a detailed plan for assessing both the processes and outcomes of the ICARE pilot sites demonstration. The plan presented to the Foundation laid out the steps we would follow including an analysis of Medicaid claims. One advantage of Medicaid claims data is that they were already being collected and processed for billing and reimbursements purposes by the Division of Medical Assistance, so that no further effort from participating medical practices or time-consuming surveys of participating patients would be necessary. The Board recognized that there was a trade-off here between using Medicaid claims data that didn't require extra data collection costs and not capturing the impact of integrated care on all patients who might benefit from these interventions. After further consideration, the Board members agreed to endorse the Sheps Center plan including Medicaid claims analyses as the only practical way to assess the patient-level impact of the ICARE pilot sites demonstration. The Foundation developed a cooperative agreement with the Division of Medical Assistance to authorize Sheps Center access to claims data for these purposes. The Division also agreed to fund the outcome component of the ICARE pilot sites demonstration.

Medicaid claims data should be interpreted carefully, however; understanding the context around which these data are generated is essential to their informed use. In that regard, we note three important caveats about Medicaid claims:

1. The claims data reflect only services billed to Medicaid. For grant-funded interventions such as ICARE, this means that services paid for by general ICARE funds that were not subject to Medicaid reimbursement are not captured in Medicaid claims. If, for example, integrated mental health services provided under ICARE were not submitted to Medicaid for reimbursement, because clinical staff time was paid for out of study resources, we might

observe a decrease in Medicaid mental health expenditures, even though service use may have increased.

2. Diagnoses captured in the Medicaid claims data are administrative diagnoses and may understate actual clinical diagnoses as recorded in medical charts. Medical providers are well known to under-state mental health diagnoses in claims data, therefore the identification of individuals through Medicaid claims will undercount the number of individuals with mental health disorders.
3. Expenditures in the Medicaid claims file will only reflect expenditures by the state Medicaid program and will not include payments from other sources such as Medicare for dually-enrolled individuals or out-of-pocket payments by consumers. Dually-enrolled Medicaid-Medicare individuals were included in all analyses reported below to capture the Medicaid portion of their expenditures.

Phase 1 of the ICARE pilot sites demonstration began in September 2006 (West) and January 2007 (East) and ended in June 2008. Phase 2 began at the end of September 2007 (North Central) and October 2007 (Southeast) and ended in June 2009. We analyzed Medicaid claims data for January 2005 through June 2008 providing a 12 month period prior to the start of the ICARE demonstration to establish a baseline and up to 12 months afterwards to assess the impact of the two-year demonstration on a variety of types of health service use and Medicaid expenditures. Follow-up times varied for the four pilots due to the six to twelve-month time lag between the date a claim is filed with Medicaid and the date that claims are reconciled and paid. The latest paid claims data we were able to access was through June 2008. To facilitate comparisons among pilots, we wanted the length of the follow-up period to be similar for each ICARE phase. So we ended up using a 12 month follow-up for the Phase 1 pilots (East and West) and 9-to-10 months for the Phase 2 pilots (North Central and Southeast).

We included a comparison or control group to infer whether any change in health care use and expenditures can be plausibly attributed to the ICARE integrated care intervention rather than other secular trends occurring at the same time. Random assignment to intervention and control groups was not employed. Rather, we used a quasi-experimental design with pre-post comparisons between intervention patients and similar groups of control patients. We report results from the following five types of health service expenditures from the NC Medicaid claims data on a quarterly basis for each patient:

1. Outpatient mental health expenditures
2. All outpatient expenditures (medical and mental health combined)
3. Emergency department expenditures
4. Psychotropic drug prescription expenditures
5. Total Medicaid expenditures on all service categories

Methods

1. Treatment and Control Groups

At each site, we identified two groups of Medicaid-enrolled individuals who may have benefited from the ICARE pilot sites intervention. First, we obtained a list of Medicaid enrollees who were reported by the pilots as directly receiving intervention services. This group of individuals is considered to have been *directly exposed* to the ICARE integrated care intervention by virtue of having been identified by the ICARE staff at each pilot site. Second, we also identified from the claims data all other individuals with the target diagnoses who received services from each ICARE pilot during the one-year period prior to ICARE. This later group may not have received targeted services from integrated care providers per se, but may have benefited at a practice-level from increased training and interactions between medical and specialty mental health providers. We provide more details on these two groups and the control groups below. Separate analyses were conducted for each ICARE pilot because of the differences in target populations (Exhibit 8). Detailed tables presenting baseline measures and effects of the interventions are presented in Appendices A-C; summary highlights are presented and discussed in the results section below.

Group One: The primary intervention group is comprised of patients in each practice who were directly exposed to the ICARE treatment. In anticipation of this analysis, we requested site coordinators to provide Medicaid ID numbers for all patients who received a service from the ICARE behavioral health provider. Subsequently, the Division of Medical Assistance matched these numbers with the encrypted identification numbers in the Medicaid data extracts made available to the Sheps Center. In this way, we were able to identify ICARE patients in the claims data without having access to unencrypted identifiers.

Exhibit 8: Pilot Site Target Diagnoses

Phase 1		Phase 2	
East	West	North Central	Southeast
All individuals with a mental health and/or substance abuse diagnosis	Bipolar, schizophrenia, schizoaffective disorder, depressive psychosis, or psychosis not otherwise specified in addition to a diabetes, asthma, COPD, or congestive heart failure diagnosis	<u>Adults:</u> Postpartum depression, other depressive disorders, sexual dysfunction disorders, and anxiety disorders (some individuals had a co-occurring substance abuse or an additional mental health diagnosis) <u>Children:</u> attention-deficit/hyperactivity disorder, depression, adjustment disorders, oppositional-defiant disorders, anxiety disorders, obsessive-compulsive disorder, autism, or Aspergers	All individuals with a mental health and/or substance abuse diagnosis

Although in theory intervention effects would be most observable for this group of patients who were directly exposed to the integrated care interventions, **it is questionable whether the effect will be**

precisely observed due to the small sample size of this group. Further, we are unable to validate the completeness of these lists. Site coordinators had difficulties in responding to our requests for lists of patients exposed to integrated care and we encountered repeated delays in obtaining them. We interpret these difficulties as evidence that the demonstration was not viewed by participating practices as an intervention for which patients were enrolled the way they would have been in a clinical trial, i.e., a clear distinction made between enrolled and not-enrolled patients that affected what services they received. Consequently, we believe that Group Two (see below) effects are more reliable indicators of the patient-level impact of the ICARE interventions. However, for the interested reader, we include Group One results as well in Appendices A-C.

Group Two: A secondary intervention group was defined as all patients in the same practices during the study period who received one or more target diagnoses (Exhibit 8) during the one-year pre-ICARE period but whose identification numbers were not specifically reported by site managers in Group One. Analysis of this group allows us to detect diffusion or “spill-over effects” and it potentially captures effects among directly exposed individuals if the Group One lists were incomplete. If present, these spillover effects would suggest that a change in practice occurred during the ICARE intervention such that providers generalized their intervention approach to similar patients treated during the ICARE demonstration period. These analyses were conducted without any major burden on practice personnel, but they did require a set of billing codes for all providers at each ICARE pilot site in order to identify the patients they treated.

Control Group: The comparison patients or control group was drawn from all individuals in NC Medicaid who received diagnoses similar to the intervention group at each pilot site, but did not see an ICARE provider during the full study period. The control groups were constructed separately for each pilot. This process again relies on the use of ICARE provider billing codes; but unlike the construction of Group Two, the billing codes were used as an exclusion criterion rather than an inclusion criterion. Patients in Groups One and Two for any of the four pilots were excluded as controls from the NC Medicaid files for these analyses. We did not need to contact non-ICARE sites for this information.

The adequacy of these comparison groups was established by examining trends in outcome variables in the one year pre-ICARE study period. We examined quarterly indicators on levels of use and trends in use during the baseline period and selected control patients based on similar trends in outcomes. It should be noted that there are some differences in the pre-period between the control and treatment groups for the Western and North Central sites (see Appendix A).

2. Analytic Methods

The Medicaid data were collapsed to the person-quarter level. This means that each patient’s service use was summed over consecutive three-month periods throughout the study interval, based on the implementation date of each ICARE pilot, and that the analyses were then performed on these quarterly observations. For this analysis, the data span up to eight quarters (four pre-intervention, four post-intervention) for Phase 1 pilots and 7+ quarters for Phase 2 pilot (four pre-intervention, and 3+ post-intervention). We controlled for linear time trends in individual treatment that occurred statewide.

A two-part regression model with individual level fixed effects was used for this analysis. The two-part modeling approach allows us to determine whether ICARE had an effect on access to care (part one), and separately, on the level (amount) of service use (part 2) among those who did access services.

We controlled for individual fixed effects or time invariant characteristics of patients, their providers, practices, and communities that may affect both the propensity to use services and those characteristics that may confound results of the integrated care demonstration, such as provider-specific effects. Some examples of individual time invariant characteristics that affect health care utilization might be gender, race, health status, propensity to use care, and locational characteristics that are constant over the 9 – 12 month period examined here. The fixed effects analysis allows us to control for differences that exist among individuals but are unobserved by the evaluator. For instance, an individual may have a history of mental illness within his family and thus be more likely to use mental health services but this would not be recorded in claims data. A fixed effects analysis offers a means of controlling for the invariant differences among individuals, such as family history of mental illness. The standard errors are adjusted for clustering, or repeated observations, at the individual level.

The two-part regression model helps us analyze the effect of the ICARE intervention by assessing the likelihood of use of mental health services as well as the level or intensity of health care utilization among users as measured by Medicaid reimbursement. We ran five two-part models for each site, examining the impact of ICARE on the likelihood of any use and the level of expenditures for (1) outpatient mental health, (2) all outpatient, (3) emergency department, (4) psychotropic drug, and (5) total expenditures. **The magnitude of the coefficients (difference-in-difference estimates), reported in Appendix Table C, describes the difference in outcome for those who received ICARE services over the level expected in the absence of ICARE, based on trends in the control group and in the pre-ICARE period.**

Results

Detailed tables presenting baseline and outcome data for each of the four pilots are presented in Appendices A-C. Here, we will highlight the main findings for Group Two separately for each pilot as displayed in Exhibit 9. This is a schematic summary of the findings presented in the detailed tables in the Appendices. Notations with plus (+) signs indicate that patients in ICARE pilot sites were significantly more likely to access care or had greater expenditures, on average, than Control patients; those with minus (-) signs indicate that patients in ICARE pilots were significantly less likely to access care or had lesser expenditures, on average, than Control patients. Double signs indicate the .01 significance level whereas a single sign indicates the .05 significance level. Empty cells indicate no effects of integrated care or potential budget neutrality; that is, for these cells, patients in ICARE pilot sites are predicted to not cost Medicaid any more or less than Control patients.

Exhibit 9: Summary Regression Results for Effects of ICARE Integrated Care Demonstration on Selected Medicaid Expenditures Per Quarter for Group Two Participants

Expenditures	Likelihood of Use				Amount of Use			
	Phase 1 Pilots		Phase 2 Pilots		Phase 1 Pilots		Phase 2 Pilots	
	East	West	NC	SE	East	West	NC	SE
Outpatient Mental Health	--	-	++	++	++			++
	-6.8%	-4.2%	12.4%	6.3%	\$344			\$1341
Total Outpatient	--		++			--	++	++
Emergency Department	-11.0%		8.8%			-\$374	\$353	\$1087
Psychotropic Medications		-		++	+			
		-2.9%		6.4%	\$130			
Total Medicaid	++		++			++		
	1.0%		3.6%			\$56		
	--		++		-		++	++
	-4.1%		8.5%		-\$82		\$258	\$1076

Overall, small but statistically significant percentage and dollar differences were observed in 55% (22 of 40) of the comparisons between Group Two and Control patients. The 45% of comparisons with no significant differences indicate situations where ICARE patients were, on average, no more or less likely to incur expenditures or have different amounts of expenditures than were Control patients. Below, we will review these patterns of results separately for each type of expenditure.

The results for Outpatient Mental Health Expenditures have the most direct implications for the patterns of care resulting from the demonstration. We see in the left side of Exhibit 9 (likelihood of use) that the Group Two ICARE patients at the Phase 2 pilot sites (NC and SE) were significantly more likely to access services (6% and 12%) and have greater expenditures (\$353 and \$1,087), on average, than did Control patients. However, in the Phase 1 pilots (East and West), ICARE patients Group 2 were significantly less likely to access Medicaid-funded outpatient mental health services (-4% and -6.8%), on average, than did Control patients.

As described in the introduction to this section, the Phase 1 (East and West) results could have occurred if ICARE grant funds substituted for Medicaid-paid services and thus the likelihood of using a mental health service captured in the Medicaid claims data decreased. This could have occurred if services provided by the co-located providers reduced the need for target patients to use outside mental health services. However, if sites were billing Medicaid for all mental health services by the co-located provider, then this finding would indicate a real decrease in the access to mental health care in an average quarter. The difference between Phase 1 and Phase 2 sites might also be due to shared learning among pilots. The ICARE demonstration operated as a learning community throughout the demonstration with regular meetings among pilot site staff and varieties of both on-site and off-site technical assistance. Shared learning might have allowed the Phase 2 sites to accelerate implementation

and Medicaid billings for mental health services. If so, this would help to explain the increases in Medicaid billable mental health service use at Phase 2 (NC and SE) pilots.

In terms of outpatient mental health expenditures by service users, we see in the right side of Exhibit 9 (amount of use) that the level of service use increased significantly in two sites (East and SE) and remained constant in the other two sites (West and NC). It is difficult to know how to interpret these last findings without knowing more about the patients' level of functioning, information that is not available in Medicaid claims. Interestingly, the West pilot, which experienced a decline in the rate of accessing services each quarter and no difference in the level of expenditures among those that did use services, targeted patients with serious mental illness and medical comorbidities. Perhaps integrated primary care in this situation can lead to reduced use of outpatient mental health services at agencies outside the medical practice. The East and Southeast both targeted adults and children/youth with a broad focus on all mental disorders. Here, information on level of functioning would also help to interpret these average increases.

Total Outpatient Expenditures is a composite of all mental health and medical care services. Here, the East pilot experienced decreases in the likelihood of outpatient use and the North Central site experienced increases; the remaining two sites were budget neutral (no significant differences) on the amount of expenditures between ICARE patients and Controls. ICARE patients at the Southeast (\$1,087/quarter) and NC (\$353/quarter) pilots had significantly greater total outpatient Medicaid expenditures, on average, than did Control patients among those who used services. ICARE patients in the West pilot, however, had lower overall outpatient expenditures (-\$374/quarter) among those that used outpatient services.

With regard to Emergency Department (ED) Expenditures, ICARE patients at the Southeast pilot had an increased likelihood of ED use relative to Control patients, while patients at the West pilot had a decreased likelihood of use. On the amount of expenditures side, only ICARE patients at the East pilot showed an increase (\$130/quarter) in per patient ED expenditures for ED users in comparison to Control patients. For Psychotropic Medication Expenditures, the East and North Central pilots showed small increases in the likelihood of having any psychotropic medication claim without a corresponding increase in the amount of expenditures for psychotropic medications. Only the West pilot (\$56/quarter, on average) revealed a significant difference in the amount of expenditures for psychotropic medications by ICARE patients relative to Controls.

Finally, regarding Total Medicaid Expenditures, the overall effect was very different across sites. ICARE patients at the North Central pilot had a greater likelihood of using Medicaid services than did Control patients and a greater level of expenditures among those who did use services (\$258/quarter). This means that Medicaid expenditures in the NC pilot were clearly greater for ICARE participants. In contrast, ICARE patients at the East pilot had a lesser likelihood of using Medicaid services and lesser expenditures among those who used services, indicating a net decrease in Medicaid expenditures. ICARE patients at the Southeast pilot were no more or less likely to use services in each quarter, but those who did had greater expenditures (\$1,076/quarter). Finally, we observed no difference in the level of total

expenditures for patients at the West site. Also, it should be noted that the lower access to outpatient mental health services at Phase 1 pilots translates to cost savings for one of those pilots (East) and that increased access as observed for the two Phase 2 pilots translates to greater costs for both of these sites.

IV. Discussion

There is a consistency in the findings between the process and outcome components of the ICARE integrated care evaluation but it takes several steps to describe and explain it. Process-wise, we found that there was widespread support and buy-in for integrated care activities among the participating primary care practices. Stakeholders at all four pilot sites agreed that the ICARE demonstration was a beneficial program that created new connections between mental health and primary care, increased communication and created contacts that did not exist prior to the ICARE demonstration. Practice staff was eager to make changes in practice routines to increase the integration of primary care and mental health services. Each pilot made demonstrable progress in bringing the two services closer together in a more coordinated way through co-located behavioral health providers and other supports. Remarkably, these endorsements were similar across a variety of primary care practices in diverse areas of North Carolina that targeted a different mental health conditions ranging from severe mental illness to anxiety and substance use across different age groups.

Outcome-wise, the Medicaid claims results were more varied across the four pilots. The Phase 1 pilots (East and West) showed small but significant decreases (3% - 11%) in Medicaid-reimbursed outpatient and ED service use. Whereas the Phase 2 pilots (North Central and Southeast showed small but significant increases (4% - 12%) in Medicaid outpatient and ED service use. We suggested that these differences might be associated with the role of co-located mental health providers and with shared learning among pilots which accelerated implementation and billings at Phase 2 pilots. (Recall that the two phases of ICARE demonstration overlapped one year; the 02 year for Phase 1 was the 01 year of Phase 2). We also noted that, for the most part, the increased access for patients in the start-up period at ICARE Phase 2 pilots was associated with increased quarterly per patient Medicaid costs.

Missing in the above interpretations of the ICARE pilot evaluation results are data on the same day Medicaid billing for primary care physicians and co-located mental health providers. When the Phase 1 pilots were first created, NC Medicaid had prohibitions against same day billing, but the Division of Medical Assistance did authorize same day billing during Phase 2 of the demonstration. Tracking the billing behavior of individual clinicians within participating primary care practices and their co-located providers over time would have helped to determine whether the interpretations suggested above are correct. However, such an effort fell outside the workscope of the present evaluation. This would be an important issue to examine in future efforts to expand integrated care throughout the state of North Carolina.

A longer-term follow-up assessment would help to clarify these findings. We had to limit the outcomes assessment in this evaluation to a 9 – 12 month follow-up due to both the lag times associated with obtaining reconciled and cleaned Medicaid paid claims files and the timeline specified in our agreements with the Foundation and the Division of Medical Assistance. Having data on the full 24 month experience of Phase 1 and Phase 2 pilots would be particularly informative about whether there was a tipping point in the second year where increased mental health access led to reductions in Medicaid expenditures for ICARE patients relative to control patients. This information is preserved in

the Medicaid claims files data so both these trends as well as the billings of participating primary care physicians, co-located providers, and out-of-practice mental health clinicians can be reconstructed. These historical files would allow for an even longer term 3-4 year follow-up to assess whether there was a continuing benefit for ICARE patients who were exposed to the integrated care interventions.

On-going funding is consistently the major barrier to sustainability of any integration effort that has been reported in the literature³, and this was a barrier for each of the ICARE pilot sites as well. Among the challenges during ICARE, determining how to bill for mental health services provided in the primary care setting was a significant challenge. ICARE central staff and technical consultants held regular trainings for primary care office staff on billing for mental health services, but practices still struggled with the process. As ICARE neared its end, sites also struggled with how to continue without grant funding support. Under current reimbursement policies, the viability of integrated care turns on the proportion of patients in a medical practice who are Medicaid eligible. The greater the number of Medicaid patients in a practice with mental disorders, the greater the reimbursement opportunities and therefore the more sustainable integrated care becomes. This funding mechanism is much more viable for pediatric practices than for general family medicine practices because of the preponderance of youngsters in pediatric practices who are Medicaid eligible. Sustainability is much less certain in adult-based practices where the preponderance of patients are typically covered by various proportions of Medicare, private insurance, and self-pay arrangements with a only small proportion on Medicaid.

As a result, with the schedule termination of the ICARE pilots, some of the sites had to end their integration efforts all together while others transferred ICARE activities and patients into other local care management programs such as the co-location grants sponsored by Community Care of North Carolina (CCNC), the networks of primary care practices organized under the state Medicaid program. Stakeholders agreed that until these barriers were removed and a stable funding source could be identified, it would be difficult to maintain integrated care at their location. The clear implication is that if sustainable improvements in integrating mental health in primary care settings are to occur in North Carolina, then innovations have got to occur at the health care financing level as well as at the medical practice-level. Figuring out how to pay for integrated care is a major unsolved problem in North Carolina and nationally that will continue to constrain and undermine innovative practices for patients needing these services.

The juxtaposition of these process and outcome results raises important policy implications. The ICARE pilot sites demonstration did promote greater access to Medicaid-reimbursed services for many patients with mental health problems who have had access barriers and obstacles to overcome in the past. Yet, this relatively short-term evaluation (only 9 - 12 months of follow-up data) relying exclusively on Medicaid claims data, was unable to show functional improvements or substantial cost savings for targeted patients at ICARE pilot sites. Nationally, it has proven very difficult even with larger studies and longer-term follow-ups to show any consistent medical cost-offsets (savings) from providing enhanced mental health services to patients in primary care settings. Our findings here are consistent with research conducted elsewhere. They also raise the policy issue that is faced by states around the country, viz., in these difficult economic times do Medicaid programs continue to make investments like

ICARE in the increased access and use of mental health services by patients in primary care settings even without evidence of overall cost savings? Obviously, this is a much bigger issue than we can adequately address with the limited findings from the ICARE pilot sites evaluation.

What are the implications of the ICARE pilot demonstration experience in going forward with further efforts in North Carolina to integrate mental health and primary care? Here, we would like to flag an issue that we noted very early in our evaluation efforts. Namely, there may well have been a trade-off in the design and impact of the ICARE demonstration as implemented over the past few years. The generally enthusiastic buy-in from practice staff might have been largely facilitated by the decision to let each pilot design their own intervention rather than follow a fixed, intensive protocol. However, such an open-ended, decentralized approach may have limited the strength and impact of the interventions as well. Future efforts to establish a business case for the integration of primary care and mental health services care would benefit from more consistent, focused, and robust interventions that can be shown to lead to improvements in health status and more efficient (i.e., less costly) use of Medicaid and other health insurance programs. Having such an evidence-base would make the prospects for integrated care much brighter in North Carolina and elsewhere around the country.

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Appendices

Appendix A. Descriptive Statistics for Medicaid Expenditures One Year *Prior* to ICARE Integrated Care Implementation

Appendix B. Descriptive Statistics for Medicaid Expenditures One Year *After* ICARE Integrated Care Implementation

Appendix C. Regression Results for ICARE Integrated Care Outcomes

Appendix D. Dimensions of Integration Survey Tool

Appendix E. Integration Activities Assessment Tool

Appendix F. Semi-Structured Interview Guide

Appendix G. Patient Focus Group Guide

Appendix A:

**Descriptive Statistics for Medicaid Expenditures
One Year *Prior* to ICARE Implementation at Each Site for
Intervention Groups and Controls**

Appendix A. Descriptive statistics for Medicaid expenditures one year *prior* to ICARE implementation at each site for Intervention Groups 1 and 2 and Controls

Variable	Proportion with Use (%)				Level of use by service users (\$)			
	East	West	NC	SE	East	West	NC	SE
Outpatient Mental Health Expenditures								
Group 1 ^a	79.41	89.80	-- ^d	58.02	696.60	2,607.22	-- ^d	6,621.71
Group 2 ^b	59.68	91.78	70.77	57.45	6,988.52	6,328.74	7,712.59	10,402.10
Controls ^c	48.74	56.20	68.92	52.35	4,308.37	2,611.62	4,985.17	5,320.81
Outpatient Expenditures								
Group 1	97.06	91.84	100	100	1,927.20	4,391.18	2,763.09	6,289.30
Group 2	98.85	97.60	98.65	99.24	5,955.38	9,822.09	8,509.98	8,615.65
Controls	95.55	57.49	71.33	97.06	4,327.88	4,930.45	6,405.41	5,430.27
Emergency Department Expenditures								
Group 1	17.65	57.14	-- ^d	38.93	311.30	790.99	-- ^d	722.23
Group 2	13.07	68.15	57.71	31.86	465.18	1,379.72	832.82	493.79
Controls	38.84	29.14	27.30	38.79	668.23	913.05	850.23	678.53
Psychotropic Drug Expenditures								
Group 1	47.06	36.73	-- ^d	24.43	572.83	1,088.59	-- ^d	420.11
Group 2	20.67	75.68	42.90	17.03	949.06	951.13	656.16	735.36
Controls	27.08	38.49	29.35	21.95	683.80	680.81	722.12	766.66
Total Expenditures								
Group 1	97.06	91.84	100	100	4,123.85	9,044.42	3,763.03	7,779.14
Group 2	98.89	98.29	98.86	99.24	7,076.71	16,280.68	10,712.43	9,956.15
Controls	97.42	57.60	71.47	97.71	6,221.71	8,842.50	8,405.31	7,233.02

^a Group 1 consists of individuals specifically identified by the study sites as receiving the intervention.

The sample size of this group is as follows: N=34 (East); N=131 (SE); N=49 (West); N=7 (NC).

^b Group 2 consists of individuals who received treatment at an ICARE practice affiliated with the site and who matched the outlined targeted diagnoses. The sample size of this group is as follows: N= 3,053 (East); N=4,080 (SE); N=292 (West); N=1,485 (NC)

^c Controls consist of Medicaid beneficiaries in North Carolina who did not receive treatment at any ICARE practice but who matched the targeted diagnoses outlined by the site. The sample size of this group is as follows: N= 307,259 (East); N=313,296 (SE); N=29,591 (West); N=186,859 (NC)

^d Sample size was too small to conduct a comparison

Appendix B:

**Descriptive Statistics for Medicaid Expenditures One Year *After* ICARE
Implementation at Each Site for Intervention Groups and Controls**

Appendix B. Descriptive Statistics for Medicaid Expenditures One Year After ICARE Integrated Care Implementation

Variable	Proportion with Use (%)				Level of use by service users (\$/visits)			
	East	West	NC	SE	East	West	NC	SE
Outpatient Mental Health Expenditure								
Group 1 ^a	90.70	95.92	85.71	73.57	4,532.21	4,613.89	1,064.53	14,986.66
Group 2 ^b	62.40	94.79	72.02	64.27	9,816.20	7,451.92	7,533.61	16,574.41
Controls ^c	52.75	60.82	64.32	52.72	6,755.07	3,791.49	3,900.23	6,647.07
Total Outpatient Expenditures								
Group 1	100.00	100.00	100.00	100.00	6,324.07	7,001.31	1,409.52	13,741.56
Group 2	98.82	98.96	97.66	99.07	7,635.85	11,151.80	8,693.06	13,494.19
Controls	97.54	62.12	66.91	97.49	6,294.83	6,245.66	5,000.46	6,223.51
Emergency Department Expenditures								
Group 1	30.32	59.18	-- ^d	43.57	564.54	958.50	-- ^d	994.13
Group 2	14.07	68.06	56.08	42.68	655.63	1,452.14	859.19	616.80
Controls	39.41	32.43	25.08	38.94	709.49	995.50	887.35	709.74
Psychotropic Drug Expenditures								
Group 1	65.12	46.94	-- ^d	27.86	840.13	1,117.00	-- ^d	603.07
Group 2	19.81	71.88	42.75	18.00	959.38	1,368.21	682.69	726.65
Controls	21.59	36.11	27.22	21.48	787.05	759.29	644.83	783.87
Total Expenditures								
Group 1	100.00	100.00	100.00	100.00	9,894.19	13,176.40	3,417.39	15,761.02
Group 2	98.85	98.96	97.94	99.17	8,818.91	18,425.11	10,920.19	14,965.01
Controls	98.16	62.27	67.29	98.00	8,144.16	9,974.24	6,841.24	8,082.92

^a Group 1 consists of individuals specifically identified by the study sites as receiving the intervention.

The sample size of this group is as follows: N= 43 (East); N=140 (SE); N=49 (West); N=7 (NC).

^b Group 2 consists of individuals who received treatment at an ICARE practice affiliated with the site and who matched the outlined targeted diagnoses. The sample size of this group is as follows: N= 3,226 (East); N=4,201 (SE); N=288 (West); N= 1,455 (NC)

^c Controls consist of individuals who did not receive treatment at any ICARE practice but who matched the targeted diagnoses outlined by the site. The sample size of this group is as follows: N=325,033 (East); N=331,668 (SE); N=30,142 (West); N=180,827 (NC)

^d -- Sample size was too small to conduct a comparison

Appendix C:

Regression Results for ICARE Integrated Care Outcomes

Appendix C. Regression Results for ICARE Integrated Care Outcomes

Variable	Differential likelihood of use ⁺				Differential amount conditional on any use			
	East	West	NC	SE	East	West	NC	SE
Outpatient Mental Health Expenditures								
Group 1	0.104* (0.045)	0.219** (0.041)	0.104 (0.118)	0.148** (0.022)	499.421 (503.650)	-418.614 (323.701)	-948.859 (1640.632)	3199.289** (330.893)
Group 2	-0.068** (0.005)	-0.042* (0.017)	0.124** (0.008)	0.063** (0.004)	343.765** (73.015)	-196.923 (131.576)	95.943 (99.797)	1340.689** (62.181)
Total Outpatient Expenditures								
Group 1	0.122** (0.037)	0.278** (0.041)	0.053 (0.113)	0.028* (0.013)	546.878 (329.862)	-555.700 (360.168)	78.405 (937.917)	1852.575** (154.135)
Group 2	-0.110** (0.004)	-0.023 (0.018)	0.088** (0.008)	0.002 (0.002)	2.455 (33.650)	-374.436** (140.735)	352.975** (70.782)	1086.666** (28.152)
Emergency Department Expenditures								
Group 1	0.071 (0.042)	0.090** (0.031)	0.037 (0.076)	0.058** (0.022)	118.757 (312.747)	-65.964 (207.483)	211.624 (1498.960)	20.645 (120.643)
Group 2	-0.001 (0.005)	-0.029* (0.013)	0.001 (0.005)	0.064** (0.004)	130.118* (63.114)	86.488 (83.429)	-33.277 (47.786)	6.692 (30.425)
Psychotropic Drug Expenditures								
Group 1	0.118** (0.030)	0.117** (0.033)	0.033 (0.076)	0.051** (0.015)	116.464* (60.664)	-108.692 (66.100)	-130.887 (230.304)	5.233 (50.354)
Group 2	0.010** (0.003)	0.017 (0.014)	0.036** (0.006)	0.005 (0.003)	-12.066 (11.241)	55.897** (20.583)	-10.155 (13.132)	-8.502 (11.195)
Total Expenditures								
Group 1	0.198** (0.029)	0.278** (0.041)	0.051 (0.113)	0.020 (0.011)	671.486 (377.238)	-577.577 (397.252)	254.188 (973.742)	1942.013** (173.910)
Group 2	-0.041** (0.003)	-0.025 (0.018)	0.085** (0.008)	0.002 (0.002)	-82.186* (38.306)	-179.543 (154.376)	257.589** (72.980)	1075.639** (31.757)

Notes: ⁺ Values represent differential effects over the control group, i.e., differences in how likely service use or expenditures occurred. For instance, the upper most cell in the first column can be interpreted as follows, “Being in group one in the Eastern site increases an individual’s likelihood of having any outpatient mental health expenditure by 10.4 percentage points relative to individuals in the control group.”

Standard errors are reported in parentheses

* Indicates that coefficient is significant at the 5% level

** Indicates that coefficient is significant at the 1% level

Appendix D:

Dimensions of Integration Survey Tool

Appendix D. Dimension of Integration Survey Tool

I. TREATMENT PATTERNS					
For those patients whom you believe to have a clinically relevant psychiatric diagnosis of _____ —What percentage to you	0-20% 1	21-40% 2	41-60% 3	61-80% 4	81-100% 5
TP1 Watchfully wait without intervening?	1	2	3	4	5
Manage yourself?	1	2	3	4	5
Refer for help to a co-located provider?	1	2	3	4	5
Refer for help to a specialty mental health provider located outside of your office?	1	2	3	4	5
II. CLINICAL ALGORITHMS/BEST PRACTICES					
When a patient presents with symptoms, physicians in our practice use a published, evidence-based diagnostic tool for:	0-20% of the time	21-40% of the time	41-60% of the time	61-80% of the time	81-100% of the time
CA1 Depression	1	2	3	4	5
CA2 Anxiety	1	2	3	4	5
CA3 ADHD/ADD	1	2	3	4	5
CA74 Bipolar Disorder	1	2	3	4	5

CA5 Substance Abuse	1	2	3	4	5	
III. CRISIS ASSESSMENT SERVICES						
CAS1 What is your practice level of knowledge about the <u>availability</u> of community-based crisis assessment services?	There are no crisis assessment services available in our community 0	Know nothing about the availability of community-based crisis assessment services 1	Know very little about the availability of community-based crisis assessment services 2	Know something about the availability of community-based crisis assessment services 3	Know a good bit about the availability of community-based crisis assessment services 4	Know all about the availability of community-based crisis assessment services 5
CAS2 What is your practice level of knowledge about how to <u>access</u> available community-based crisis assessment services?	There are no crisis assessment services available in our community 0	Know nothing about how to access available community-based crisis assessment services 1	Know very little about how to access available community-based crisis assessment services 2	Know something about how to access available community-based crisis assessment services 3	Know a good bit about how to access available community-based crisis assessment services 4	Know all about how to access available community-based crisis assessment services 5
CAS3 Does your practice <u>refer</u> patients to available community-based crisis assessment services when needed?	There are no crisis assessment services available in our community 0	Never Refer 1	Rarely Refer 2	Sometimes Refer 3	Usually Refer 4	Always Refer 5
CAS4 When you refer a patient to community-based crisis assessment services, how often do you know if services are received?	There are no crisis assessment services available in our community 0	0-20% of the time 1	21-40% of the time 2	41-60% of the time 3	61-80% of the time 4	81-100% of the time 5

TP2 What is the typical amount of <u>time between</u> a PCP referral and a patient's first specialty mental health/LME visit outside of the primary care practice?	Greater than 3 months	1- 3 months	2-4 weeks	1-2 weeks	2-6 days	1 day	Same Day
	1	2	3	4	5	6	7

VI. COMMUNICATION

The next seven questions pertain to communication with the co-located provider in your practice

C1 What <u>information</u> is typically shared with the co-located mental health provider by the referring PCP prior to a patient's first co-located mental health visit?	There is no co-located provider in the primary care practice	There is no information shared prior to the first visit	A referral is made but no patient information is shared other than name	A referral is made and some patient information is shared	A referral is made and portions of medical chart are shared	A referral is made and full medical chart is shared
	0	1	2	3	4	5
C2 How often does the referring PCP initiate <u>written communication</u> (referral letter or email) with the <u>co-located</u> mental health provider and PCP prior to a patient's first co-located mental health visit?	There is no co-located provider in the primary care practice	0-20% of the time	21-40% of the time	41-60% of the time	61-80% of the time	81-100% of the time
	0	1	2	3	4	5

C3 How often does the referring PCP initiate oral <u>communication</u> (phone call, face-to-face conversation) with the <u>co-located</u> mental health provider prior to a patient's first co-located mental health visit?	There is no co-located provider in the primary care practice	0-20% of the time	21-40% of the time	41-60% of the time	61-80% of the time	81-100% of the time
	0	1	2	3	4	5
How often does the co-located mental health provider send the following feedback to the PCP?	There is no co-located provider in the primary care practice	0-20% of the time	21-40% of the time	41-60% of the time	61-80% of the time	81-100% of the time
C4 Acknowledgement of Appointment Kept by Referred Patient	0	1	2	3	4	5
C5 Clarified Diagnosis for Referred Patient	0	1	2	3	4	5
C6 Recommended Treatment Plan for Referred Patient	0	1	2	3	4	5
C7 Adequate Response to a Referral Question	0	1	2	3	4	5
The next seven questions pertain to communication with the specialty mental health provider located outside of your practice.						

C8 What <u>information is typically shared</u> with the specialty mental health provider (located outside of the primary care office) by the referring PCP prior to a patient's first specialty mental health visit?	There is no information shared between the two providers prior to the first visit 1	A referral is made but no patient information is shared other than name 2	A referral is made and some patient information is shared 3	A referral is made and portions of medical chart are shared 4	A referral is made and full medical chart is shared 5
C9 How often does the referring PCP initiate <u>written communication</u> (referral letter, email) with the specialty mental health provider prior to a patient's first specialty mental health visit?	0-20% of the time 1	21-40% of the time 2	41-60% of the time 3	61-80% of the time 4	81-100% of the time 5
C7 How often does the referring PCP initiate oral <u>communication</u> (phone call, face-to-face conversation) with the specialty mental health provider prior to a patient's first specialty mental health visit?	0-20% of the time 1	21-40% of the time 2	41-60% of the time 3	61-80% of the time 4	81-100% of the time 5
How often does the mental health specialty provider send the following feedback to the PCP?	0-20% of the time	21-40% of the time	41-60% of the time	61-80% of the time	81-100% of the time
C8 Acknowledgement of Appointment Kept by Referred Patient	1	2	3	4	5

C9 Clarified Diagnosis for Referred Patient	1	2	3	4	5
C10 Recommended Treatment Plan for Referred Patient	1	2	3	4	5
C11 Adequate Response to a Referral Question	1	2	3	4	5

VII. PATIENT CARE

The next three questions pertain to those patients for whom you refer to the co-located mental health provider.

PC1 After a patient is seen by a co-located mental health provider, how often is an <u>individualized care plan</u> created for the patient?	There is no co-located provider in the primary care practice	0-20% of the time	21-40% of the time	41-60% of the time	61-80% of the time	81-100% of the time	
	0	1	2	3	4	5	
PC2 For these patients, who takes responsibility for <u>implementing</u> the individualized care plan?	There is no co-located provider in the primary care practice	No individualized care plan is created	The PCPs take full responsibility	There is some sharing but mostly the PCP takes responsibility	Both take joint responsibility	There is some sharing but mostly the mental health provider takes responsibility	The mental health/behavioral health provider takes full responsibility
	0	1	2	3	4	5	6

<p>PC3 For these patients, who takes responsibility for <u>following up</u> on whether the individualized care plan is being followed?</p>	<p>There is no co-located provider in the primary care practice</p> <p>0</p>	<p>No individualized care plan is created</p> <p>1</p>	<p>The PCPs take full responsibility</p> <p>2</p>	<p>There is some sharing but mostly the PCP takes responsibility</p> <p>3</p>	<p>Both take joint responsibility</p> <p>4</p>	<p>There is some sharing but mostly the mental health provider takes responsibility</p> <p>5</p>	<p>The mental health/behavioral health provider takes full responsibility</p> <p>6</p>
<p>Now we'll switch to talking about patients referred to specialty mental health providers.</p>							
<p>PC4 For your patients who are referred out to a specialty mental health provider, how knowledgeable are you that an <u>individualized care plan is created</u> for the patient?</p>	<p>Not at all knowledgeable</p> <p>1</p>		<p>Somewhat knowledgeable</p> <p>2</p>		<p>Very knowledgeable</p> <p>3</p>		
<p>PC5 Contingent upon knowledge of the plan, who takes responsibility for <u>implementing</u> the individualized care plan created?</p>	<p>No knowledge of an individualized care plan</p> <p>0</p>	<p>No individualized care plan is created</p> <p>1</p>	<p>The PCPs take full responsibility</p> <p>2</p>	<p>There is some sharing but mostly the PCP takes responsibility</p> <p>3</p>	<p>Both take joint responsibility</p> <p>4</p>	<p>There is some sharing but mostly the mental health provider takes responsibility</p> <p>5</p>	<p>The mental health/behavioral health provider takes full responsibility</p> <p>6</p>
<p>PC6 Contingent on knowledge of the plan, who takes responsibility for <u>following up</u> on whether the individualized care plan is being followed?</p>	<p>No knowledge of an individualized care plan</p> <p>0</p>	<p>No individualized care plan is created</p> <p>1</p>	<p>The PCPs take full responsibility</p> <p>2</p>	<p>There is some sharing but mostly the PCP takes responsibility</p> <p>3</p>	<p>Both take joint responsibility</p> <p>4</p>	<p>There is some sharing but mostly the mental health provider takes responsibility</p> <p>5</p>	<p>The mental health/behavioral health provider takes full responsibility</p> <p>6</p>

VIII. APPROPRIATE CARE PROCESSES

The next five questions ask about appropriate care processes for patients. We recognize that the term appropriate can have different meanings. For the purpose of this survey, an appropriate care process includes (1) the use of established screening and/or diagnosis tools, (2) proper referral and/or treatment protocols, (3) adequate sharing of information between providers, and (4) appropriate follow-up

How many <u>elements of an appropriate care process</u> are implemented at your practice for patients presenting with:	No elements	1 element	2 elements	3 elements	4 elements
	1	2	3	4	5
PC2 Depression?	1	2	3	4	5
PC3 Anxiety?	1	2	3	4	5
PC4 ADHD/ADD?	1	2	3	4	5
PC5 Bipolar Disorder?	1	2	3	4	5
PC6 Substance Abuse?	1	2	3	4	5

Appendix E:

Integration Activities Assessment Tool

Appendix E. Integration Activities Assessment Tool

Pilot Site _____ **Your Name** _____
City _____ **Title** _____

Quarter	Fiscal Year												
	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13
(1) Potential ICARE target population (total population eligible to receive services from ICARE – active charts in ICARE practices)													
(2) Number of Potential ICARE Patients (above) that are screened for mental health services by ICARE staff													
(3) Number of potential ICARE patients (above) that are referred to ICARE staff for mental health services													
(4) # of mental health appointments conducted by ICARE providers/staff													
(5) # of mental health appointments referred out by ICARE providers/staff													
(5a) # of appointments in #5 referred to the LME													
(5b) # of appointments in #5 referred to other mental health providers													
(6) # of contacts (consultation/collaboration/communication) between ICARE provider/case manager and primary care office staff/physicians that were spent discussing patients													
(7) # of contacts (consultation/collaboration/communication) occurring directly between ICARE provider/case manager and specialty mental health providers													
(8) # of contacts (consultation/collaboration) between ICARE provider/case manager and the LME													

Appendix F:

Semi-Structured Interview Guide

Appendix F. Semi-Structured Interview Guide

1. What are your perceptions of the overall implementation of ICARE?
2. What obstacles have you encountered while implementing ICARE?
3. What facilitators have you encountered while implementing ICARE?
4. Do you think the program has been successful? Unsuccessful? Why?
5. What changes have you been able to sustain? (Ask in second interview only). Why?
6. What would you change if you had it to do over again?
7. Do you believe it has improved the care that patients have received? What pieces of ICARE have made a direct contribution to that change?

Appendix G:

Patient Focus Group Guide

Appendix G. Patient Focus Group Guide

1. Discuss the mental health care you have been receiving over the last (time period ICARE has been implemented).
2. How has this care changed, as compared to your mental health care prior to ICARE implementation?
3. What are some of the things that you like about your health care and mental health care at (ICARE primary care clinic)?
4. What are some of the things you don't like about your health care and mental health care at (ICARE primary care clinic)?
5. What would you change about your care at (ICARE primary care clinic)?
6. Would you say that your mental health care has gotten better or worse since (time period when ICARE was implemented)?