Integrating Primary Care Into Community Mental Health Centers: Impact on Utilization and Costs of Health Care

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Objective: This evaluation was designed to assess the impact of providing integrated primary and mental health care on utilization and costs for outpatient medical, inpatient hospital, and emergency department treatment among persons with serious mental illness.

Methods: Two safety-net, community mental health centers that received a Substance Abuse and Mental Health Services Administration Primary and Behavioral Health Care Integration (PBHCI) grant were the focus of this study. Clinic 1 had a ten-year history of providing integrated services whereas clinic 2 began integrated services with the PBHCI grant. Difference-in-differences (DID) analyses were used to compare individuals enrolled in the PBHCI programs (N=373, clinic 1; N=389, clinic 2) with propensity score–matched comparison groups of equal size at each site by using data obtained from medical records.

Results: Relative to the comparison groups, a higher proportion of PBHCI clients used outpatient medical services at both sites following program enrollment ($p<.003$, clinic 1; $p<.001$, clinic 2). At clinic 1, PBHCI was also associated with a reduction in the proportion of clients with an inpatient hospital admission ($p=.04$) and a trend for a reduction in inpatient hospital costs per member per month of $217.68 ($p=.06$). Hospital-related cost savings were not observed for PBHCI clients at clinic 2 nor were there significant differences between emergency department use or costs for PBHCI and comparison groups at either clinic.

Conclusions: Investments in PBHCI can improve access to outpatient medical care for persons with severe mental illness and may also curb hospitalizations and associated costs in more established programs.

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Adults with serious mental illness are at elevated risk for a wide range of medical conditions, illnesses, and premature death (1–4), at least in part because of poor connections to primary and preventive medical care. Such individuals are known to present formidable challenges to traditional primary care (3) while at the same time perceiving the primary care system as insensitive and unresponsive to their needs (5). Without regular primary care, adults with serious mental illness often have more emergency department visits and potentially preventable medical hospitalizations because chronic conditions are not well controlled (6–8). One promising strategy to improve care for this population is to integrate primary care into community mental health settings where persons with mental illness are already receiving mental health services (1,9).

To date, more than 100 community mental health centers have received four-year grants to implement this approach through the Substance Abuse and Mental Health Services Administration (SAMHSA) Primary and Behavioral Health Care Integration (PBHCI) grant program (http://www.integration.samhsa.gov/about-us/pbhci). An early evaluation of this program showed that once PBHCI clients were enrolled in the program, they were more likely than a control group to receive primary care services and they had improved health outcomes for diabetes, cholesterol, and hypertension but not for obesity or smoking (10).

An important policy question, whether the receipt of integrated services is associated with subsequent increases in outpatient medical utilization and reductions in inpatient hospital and emergency department utilization and costs, has not been addressed. The purpose of this study was to address this question by examining health care claims data in a sample of adults with serious mental illness who were enrolled in one of two PBHCI-funded clinics—one with more than a decade of experience integrating general medical and mental health care (clinic 1) and one with no health care integration experience prior to receiving a PBHCI grant (clinic 2).

METHODS

PBHCI Program

Data in this report are from a single PBHCI grant, awarded in September 2010, that funded integrated care services in two clinics until December 31, 2014, when the program ended. Both clinics were considered critical parts of the safety-net system of services for the vulnerable, homeless, and hard-to-serve populations in King County, Washington, which includes Seattle. These clinics incorporated the following six program features: screening and referral for prevention and treatment needs related to general medical health, a registry to track needs and outcomes related to general medical health, care management, prevention and wellness services, a supervising primary care physician, and embedded nurse care managers (9,10).

Primary care services were delivered between February 2011 and September 2014 by an advanced registered nurse practitioner. Each clinic also had a nurse who coordinated primary and mental health care for clients. All medical staff were responsible for referrals to specialty care and chemical dependency treatment. Peer counselors, under the supervision of nurse care coordinators, carried out wellness programs, including nutrition, exercise, and smoking cessation. Prior to receiving PBHCI funding, clinic 1 had been providing on-site primary care for more than a decade. Primary care was provided by an advanced registered nurse practitioner and physician assistant working under the supervision of an internal medicine physician with caseloads of approximately 30 to 40 clients. In contrast, clinic 2 began providing integrated care services soon after receiving the PBHCI grant.

Design

This study was designed to compare utilization and costs related to outpatient general medical, inpatient hospital, and emergency department care for clients enrolled in the PBHCI program and a comparison group matched by propensity scores to determine whether enrollment in PBHCI affected health care utilization and costs. Because the two clinics differed in prior experience with primary and mental health care integration, we analyzed data for each clinic separately. The University of Washington Institutional Review Board reviewed this project and deemed that it was not human subjects research.

Participants

Intervention groups. Participants were all clients who were receiving mental health services and were enrolled in PBHCI at clinic 1 (N=373) or clinic 2 (N=389) for at least one month between February 2011 and September 2014. In the first year of the program, clients with a psychotic disorder diagnosis, clients who were taking second-generation antipsychotic medication, and clients with no regular source of primary care were targeted. In subsequent years, enrollment extended to clients with any diagnosis of serious mental illness.

Comparison groups. Members of the comparison groups were selected from the pool of clients being treated contemporaneously at clinics 1 and 2 who did not receive PBHCI services. Participants in the control group were matched to clients in the intervention group by using a 1:1 propensity score "nearest neighbor" match on the basis of the following variables: health care cost and utilization in the year prior to PBHCI enrollment, age, gender, race-ethnicity, whether a speaker of English, homelessness status (one or more days of homelessness in the year prior to enrollment), primary insurance (Medicaid, Medicare, private, or not insured), and behavioral program at site. A full summary of baseline characteristics of clients enrolled in the PBHCI program and their propensity score–matched comparators can be found in Table 1.

Data Sources

Data were obtained from billing and claims records of the medical center with which the PBHCI clinics were affiliated. Data included number and costs of outpatient medical visits, inpatient admissions, and emergency department visits as well as diagnoses associated with each visit. Costs were measured as facility costs assigned by the medical center; physician time was not included in these costs. Once these data were extracted, per member per month (PMPM) averages were calculated for each variable. Inpatient hospital admissions and emergency department visits included both general medical and psychiatric inpatient admissions; emergency department visits included only visits not followed by an inpatient hospital admission. Outpatient visits to mental health clinics were excluded from the analyses, given that the PBHCI project did not aim to change receipt of mental health services.

Data Analyses

For the PBHCI groups, pre- and postperiods were individually constructed for each participant. The preperiod was defined as the year prior to program entry. The postperiod varied for individual participants depending on the number of months for which data were available between program entry and program end. To maximize the number of participants included in the analyses, we included all participants who had at least one month of data following the program entry date. For the comparison groups, a program entry date was assigned to each individual on the basis of the frequency distribution of program entry found for the PBHCI group at their particular site; pre- and postperiods for the comparison groups were constructed in the same manner as for the PBHCI groups.

Differences in outcomes were calculated by subtracting the preperiod value from the postperiod value, with positive values indicating an increase in the outcome over time and negative values indicating a decrease. Difference-in-differences (DID) regression models were estimated with ordinary least-squares regression for each outcome (11). Participants with no visits or costs were included because this type of model is typically robust to violations of normality in sample sizes that are similar to those presented in this article (12). The models

TABLE 1. Characteristics of 1,524 clients in the PBHCI program or a comparison group at two mental health clinics, by variables used in propensity score matching[a]

	Clinic 1 (N=746)					Clinic 2 (N=778)				
	PBHCI (N=373)		Comparison (N=373)			PBHCI (N=389)		Comparison (N=389)		
Characteristic	N	%	N	%	p[b]	N	%	N	%	p[b]
Age (M±SD)	47.60±11.12		47.55±13.15		.96	46.95±10.18		47.00±11.31		.93
Male	256	68	270	72	.26	265	68	261	67	.76
Race-ethnicity					.90					.66
American Indian/Alaska Native	6	2	6	2		9	2	10	3	
Asian	18	5	20	5		12	3	10	3	
Black	137	37	152	41		110	28	124	32	
Hispanic	10	3	7	2		15	4	22	6	
Multiracial	9	2	11	3		6	2	5	1	
Native Hawaiian/other Pacific Islander	1	<1	0	—		1	<1	0	0	
Other	5	1	6	2		0	—	0	—	
White	184	49	168	45		229	59	208	53	
Missing	3	1	3	1		7	2	10	3	
Primary language					.64					.90
English	343	92	349	94		354	91	351	90	
Other	24	6	18	5		13	3	13	3	
Missing	6	2	6	2		22	6	25	6	
Homeless	118	32	114	31	.75	256	66	270	69	.28
Primary insurance					.80					.35
Commercial	17	5	20	5		3	1	3	1	
Medicaid	186	50	175	47		194	50	190	49	
Medicare	132	38	145	39		146	38	138	35	
Self-pay	28	8	43	9		46	12	58	15	
Preperiod utilization and costs PMPM[c]										
Outpatient										
Costs (M±SD $)	189.42±233.31		194.28±301.06		.81	32.76±80.34		31.46±74.22		.82
Visits (M±SD)	.56±.68		.61±.85		.43	.09±.19		.10±.24		.51
Inpatient										
Costs (M±SD $)	326.30±952.75		329.00±1,625.39		.98	466.48±1,394.38		494.64±2,965.84		.87
Admissions (M±SD)	.02±.06		.02±.06		.65	.03±.06		.03±.09		.44
Emergency department										
Costs (M±SD $)	70.71±159.49		78.42±166.58		.52	97.18±200.12		95.05±226.09		.89
Visits (M±SD)	.12±.21		.11±.20		.68	.17±.33		.16±.40		.78

[a] PBHCI, Primary and Behavioral Health Care Integration
[b] Calculated using chi-square test, Fisher's exact test, or t test
[c] PMPM, per member per month

contained PBHCI status (PBHCI=1, comparison=0), time (preperiod=0, postperiod=1), and the interaction of time × PBHCI status (the DID estimate) and were weighted by the number of months in the postperiod. Adjusted models also included age, race-ethnicity, gender, homelessness status, primary language, and primary insurance.

RESULTS

PBHCI and propensity-matched comparison groups were not significantly different on any of the variables used for matching (Table 1). PBHCI and comparison groups also did not differ on the number of days in the postperiod (PBHCI, mean=973±337, range 203–1,410, and comparison, mean=956±332, range 232–1,415 [clinic 1]; PBHCI, mean=845±371, range 104–1,420, and comparison, mean=834±391, range 141–1,420 [clinic 2]).

PBHCI clients at both sites had a higher average number of chronic illnesses than clients in the comparison groups, as measured by the Chronic Disability Payment System (CDPS) (13) (Table 2). PBHCI clients were also more likely than comparison clients to have diagnoses in the high psychiatric subcategory, denoting a more serious psychiatric condition (57% and 22%, respectively, $p<.001$ [clinic 1]; 30% and 13%, respectively, $p<.001$ [clinic 2]).

Table 3 presents a summary of unadjusted pre- and postperiod values for each of the dependent variables for each clinic. Table 4 presents results of the DID analyses comparing utilization and costs for outpatient medical care, inpatient hospital admissions, and emergency department

TABLE 2. Chronic illnesses experienced by 1,524 clients in the PBHCI program and a comparison group at two mental health clinics[a]

	Clinic 1 (N=746)					Clinic 2 (N=778)				
	PBHCI (N=373)		Comparison (N=373)			PBHCI (N=389)		Comparison (N=389)		
Illness	N	%	N	%	p[b]	N	%	N	%	p[b]
Total (M±SD)	5.31±2.85		4.45±3.73		<.001	3.36±3.10		2.88±3.65		.047
AIDS/HIV	4	1	11	3	.07	2	1	2	1	1.00
Cancer	22	6	13	3	.12	7	2	9	2	.61
Cardiovascular	160	43	132	35	.04	93	24	84	22	.44
Central nervous system	139	37	147	39	.55	97	25	99	25	.87
Cerebrovascular	9	2	7	2	.61	4	1	11	3	.07
Developmental disability	6	2	0	—	.01	5	1	1	<1	.10
Diabetes	62	17	58	16	.69	27	7	20	5	.29
Ear	20	5	9	2	.04	14	4	20	5	.29
Eye	55	15	55	15	1.00	16	4	20	5	.49
Genital	116	31	110	29	.63	80	21	78	20	.86
Gastrointestinal	40	11	27	7	.10	15	4	23	6	.18
Hematological	31	8	42	11	.18	30	8	29	7	.89
Infectious	21	6	17	5	.51	40	10	30	8	.21
Metabolic	187	50	136	36	<.001	95	24	67	17	.01
Pregnancy/perinatal	1	<1	4	1	.18	3	1	3	1	1.00
Psychiatric, high	214	57	81	22	<.001	116	30	52	13	<.001
Psychiatric, medium	143	38	145	39	.88	73	19	53	14	.05
Psychiatric, low	8	2	27	7	<.001	24	6	32	8	.27
Pulmonary	127	34	112	30	.24	110	28	102	26	.52
Renal	65	17	55	15	.32	34	9	58	15	.01
Skeletal	172	46	160	43	.38	135	35	109	28	.04
Skin	150	40	137	37	.33	144	27	92	24	<.001
Substance abuse	229	61	174	47	<.001	143	37	125	32	.17

[a] Illnesses were identified by the Chronic Disability Payment System (CDPS) in the year prior to participation in the Primary and Behavioral Health Care Integration (PBHCI) program or comparison group. As context for these data, disabled Medicaid beneficiaries typically report an average of 2 CDPS chronic illness categories (13).

[b] Calculated using chi-square test, Fisher's exact test, or t test

visits for PBHCI and comparison groups at each clinic. Results of the DID analyses showed significant increases in the proportion of PBHCI clients using outpatient general medical services in the period following PBHCI enrollment compared with the comparison groups at both clinic 1 ($p<.003$) and clinic 2 ($p<.001$). Specifically, at clinic 1 the percentage of clients using outpatient medical services in the pre- and postperiods increased from 80% (N=298) to 92% (N=343) among PBHCI clients but changed little in the comparison group (from 61% [N=228] to 60% [N=224]). At clinic 2, the percentage of clients using outpatient medical services increased from 39% (N=152) to 76% (N=296) among PBHCI clients but changed little in the comparison group (from 28% [N=109] to 31% [N=121]).

At clinic 1, the intervention was also associated with a reduction in the proportion of clients with an inpatient hospital admission (from 18% [N=67] to 12% [N=45], $p<.04$), compared with an increase for the comparison group (from 15% [N=56] to 17% [N=63]).

At clinic 1, the intervention was also associated with a reduction in the proportion of clients with an inpatient hospital admission (from 18% [N=67] to 12% [N=45], $p<.04$), compared with an increase for the comparison group (from 15% [N=56] to 17% [N=63]). In addition, at clinic 1, DID analyses revealed trends for a decrease in the number of PMPM inpatient admissions ($p<.08$) and in PMPM inpatient costs (an estimated average PMPM reduction of $217.68, $p<.06$). At clinic 2, the percentage of clients with an inpatient hospital admission in the preperiod and postperiod did not differ for either the PBHCI clients (21% and 22%, respectively) or the comparison group (19% and 20%, respectively).

Although PBHCI participants showed a decrease in emergency department use and costs at both sites, these decreases were not significantly different from those observed in the respective comparison groups. Between 38% and 55% of PBHCIa and comparison clients used emergency department services in the pre- and postperiods.

DISCUSSION

PBHCI is the largest demonstration of integrated care for adults with serious mental illness in the United States and serves as a showcase of a novel model in which primary care is introduced in mental health settings where clients with mental illnesses already receive services. Although previous evaluations of PBHCI have described clinical outcomes, none to our knowledge have reported on the model's impact on services and costs—information that payers need to assess the risks and potential payoffs of investing in providing integrated care services.

A primary goal of the SAMHSA PBHCI program is to increase clients' use of primary care services. Results indicated

that both programs studied here were successful in meeting this goal, even at clinic 1, which offered integrated care before the grant. This observation suggests that boosting funding even for programs with existing integrated services may have benefits. As such, identifying optimal funding levels for programs with different histories and levels of integration may be an important topic for future research.

The PBHCI program is based on the assumption that integrating behavioral and general medical care for persons with serious mental illness provides critical preventive services and acute care for emergent issues in a timely manner, thus reducing the use of inpatient hospitalization and emergency department services and associated costs. In this study, we saw evidence of reductions in inpatient hospital admissions among PBHCI clients at clinic 1, the clinic with existing integrated care services. These reductions were associated with a trend for an average cost reduction of $217.68 PMPM coupled with a trend for an average increase in outpatient medical costs of $50.56 PMPM, suggesting that PBHCI was a good investment at clinic 1. Such savings did not occur at clinic 2, which was new at providing integrated care. It is possible that the average follow-up period at clinic 2 (2.3 years, compared with 2.7 years at clinic 1) was not long enough to capture changes in use of inpatient hospital services, given that the clinic was identifying serious medical problems, often for the first time, in a population that had not been receiving general medical care. In fact, medical staff at clinic 2 argued that it may have been necessary for the program to increase inpatient hospital services for the first few years in order to serve pent-up need for treatment of serious medical conditions that had been ignored or undetected. Only after the program had addressed such needs, they contended, would it be reasonable to expect long-term reductions in use of inpatient services.

Clinic 1, on the other hand, had been providing integrated services long before PBHCI was introduced, so there was probably less pent-up need or demand for treatment of serious medical conditions, making it more possible to reflect the longer-term impact of an integrated care model on inpatient hospital use.

It is also possible that the relatively high proportion of clients with a history of homelessness at clinic 2 may have served to dilute the impact of the PBHCI intervention at that site, given the disruptive nature of homelessness on follow-through with taking prescribed medications and other medical recommendations. Given that almost two-thirds of clients at clinic 2 were homeless (compared with one-third in clinic 1), a more intense intervention that included the provision of housing may have been necessary to affect inpatient hospital use (14). We suggest these as important questions for future research. In any case, it is clear that the proportional increase in utilization of outpatient treatment between the pre- and postperiod, which was relatively small in clinic 1 (from 80% to 92%) and relatively large in clinic 2 (from 39% to 76%) was not, in itself, a good predictor of change in inpatient hospital utilization and costs. It is likely

TABLE 3. Health care utilization and cost measures before (preperiod) and after (postperiod) program enrollment among PBHCI clients and a comparison group at two mental health clinics[a]

	Clinic 1 (N=746)						Clinic 2 (N=778)					
	PBHCI (N=373)			Comparison (N=373)			PBHCI (N=389)			Comparison (N=389)		
Health care measure	Pre-period	Post-period	Pre-post difference	Pre-period	Post-period	Pre-post difference	Pre-period	Post-period	Pre-post difference	Pre-period	Post-period	Pre-post difference
Outpatient general medical visits												
Percentage of clients	80	92	12	61	60	−1	39	76	37	28	31	3
Visits PMPM	.56	.56	−.01	.61	.49	−.11	.09	.18	.09	.08	.12	.04
Costs PMPM ($)	189.42	230.78	41.36	194.28	172.64	−21.64	32.76	69.86	37.10	27.82	50.58	22.76
Inpatient hospital admissions												
Percentage of clients	18	12	−6	15	17	2	21	22	1	19	20	1
Admissions PMPM	.02	.01	−.01	.02	.02	.00	.03	.02	−.01	.03	.03	−.00
Costs PMPM ($)	326.30	281.94	−44.36	329.00	479.39	150.39	466.48	439.44	−27.05	418.75	470.28	−51.53
Emergency department visits												
Percentage of clients	51	40	−11	48	40	−8	55	52	−3	40	38	−2
Visits PMPM	.12	.09	−.03	.11	.10	−.01	.17	.15	−.02	.16	.14	−.03
Costs PMPM ($)	70.71	61.96	−8.74	78.42	86.28	7.86	97.18	83.91	−13.21	109.04	99.12	−4.08

[a] Primary and Behavioral Health Care Integration; PMPM, per member per month

TABLE 4. Difference-in-differences (DID) analysis of health care utilization and costs among 1,524 clients enrolled in the PBHCI program and a comparison group, by clinic[a]

	Clinic 1 (N=746)						Clinic 2 (N=778)					
	Unadjusted difference			Adjusted DID			Unadjusted difference			Adjusted DID		
Health care measure	PBHCI	Comparison	p	Estimate	95% CI	p	PBHCI	Comparison	p	Estimate	95% CI	p
Outpatient general medical visits												
Percentage of clients	.11	−.01	<.001	.12	.04 to.21	.003	.37	.03	<.001	.34	.25 to .43	<.001
Visits PMPM	−.01	−.11	.03	.09	−.04 to .24	.17	.08	.04	<.001	.04	−.004 to .08	.07
Costs PMPM ($)	41.36	−21.64	.01	$50.56	−6.32 to 107.45	.08	37.10	22.76	.11	.36	−21.31 to 22.02	.97
Inpatient hospital admissions												
Percentage of clients	−.05	.02	.03	−.07	−.14 to .00	.04	.01	.01	.94	.002	−.07 to .08	.95
Admissions PMPM	−.01	.001	.03	−.01	−.01 to .00	.08	−.005	−.003	.81	−.00	−.01 to .01	.99
Costs PMPM ($)	−44.36	150.39	.08	−217.68	−443.55 to 8.17	.06	−27.05	51.53	.99	−56.03	−153.54 to 259.25	.71
Emergency department visits												
Percentage of clients	−.11	−.08	.45	−.03	−.12 to .06	.52	−.03	−.02	.84	−.01	−.10 to .08	.87
Visits PMPM	−.02	−.01	.29	−.01	−.04 to .02	.49	−.02	−.03	.86	−.01	−.06 to .05	.77
Costs PMPM ($)	−8.74	7.86	.19	−17.17	−48.28 to 13.94	.28	−13.27	−4.08	.28	−23.20	−58.99 to 12.54	.20

[a] PBHCI, Primary and Behavioral Health Care Integration; PMPM, per member per month. DID models included PBHCI status, time, and the PBHCI × time interaction. They were adjusted for age, race-ethnicity, gender, homelessness status, primary language, and primary insurance and were also weighted by the number of months for which data were available between program entry and program end.

that other factors, such as history of integrated care or client characteristics, may also play an important role in determining the total cost of care.

We saw little evidence of change in emergency department use at either site. In fact, 40% to 52% of clients continued to use the emergency department in the year after enrolling in PBHCI. Similar findings have been reported in studies of homeless veterans (15,16) and persons with severe or substantial problem drug use (the majority of whom were homeless, mentally ill, or both) (17), even when access to primary care was available. One explanation for this pattern is that emergency department use may reflect unmet psychosocial needs of the homeless population (16). Supporting this explanation is the finding that providing services that specifically target homelessness has been successful in reducing emergency department use (14,18,19). Thus, to have an impact on emergency department use for the high-risk, vulnerable, and frequently homeless clients studied here, it may be necessary to supplement PBHCI-type services with integrated psychosocial services beyond usual care that specifically target homelessness. We recommend future research to test this idea with populations like the one studied here.

Important strengths of this study included the fact that this was the first utilization and cost study of PBHCI—information that is key for sustainability of individual programs. Data used in this study were objective and systematic, coming from health care claims, and were subjected to rigorous analysis that employed DID analyses with propensity-score matching. Because of its size and breadth, the PBHCI initiative provides a unique opportunity to learn about the range of benefits and challenges of integrating primary care into mental health centers. It also offers the opportunity to examine this important intervention with a naturalistic, ecologically valid design. Finally, this study is unique in that it examined potential effects of mature versus de novo integrated clinic services.

The study also had a number of limitations. First, although PBHCI and comparison groups appeared well balanced on variables used to create the propensity score match, differences between the two groups on two variables suggest potential sources of selection bias. PBHCI clients were more likely to receive outpatient medical services at baseline compared with the comparison group, and the percentage of clients with the most serious mental health problems was higher among PBHCI clients compared with the comparison group. Second, it is likely that more CDPS categories were reported for clinic 1 clients because of the greater frequency of medical contacts among clinic 1 versus clinic 2 clients and not necessarily because they had more medical problems. Third, the comparison group may have experienced spillover effects associated with being served contemporaneously at the same sites offering PBHCI.

Fourth, general medical services could have been undercounted, given that we had access to only service records at the single medical center with which the clinics

were associated, and clients could have received services at other clinics and medical centers. Fifth, some PBHCI clients had a limited treatment period, but this outcome reflects real-life results with a seriously disabled safety-net population. Sixth, it was not possible to determine whether emergency department visits or inpatient hospital admissions were due to general medical or psychiatric problems. Seventh, we cannot provide data on the cost of the PBHCI program, given that such estimates were beyond the scope of this study. Finally, we lack detailed information on how community mental health centers implemented the project.

CONCLUSIONS

Findings suggest that investments in primary and behavioral health care integration can improve access to primary care for persons with serious mental illness, regardless of whether the clinic has a history of integration. Such investments also appeared to curb hospitalizations in the more established program, with a trend for potential savings of $217.68 PMPM, more than four times greater than the average increase in outpatient medical costs ($50.56 PMPM) associated with such investments, suggesting that PBHCI was a good investment at this clinic. Considering the medical complexities associated with serious mental illness and the historic lack of access to primary medical care among individuals with serious mental illness, such findings are promising and argue for expansion of integrated services for this population. They also have the potential to inform Medicaid and local hospital systems about the risks and payoffs of investing in integrated care for persons with serious mental illness and to create the opportunity for these payers to fund such services after federal PBHCI funding ends.

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