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# Integrated Care in Rural Health: Seeking Sustainability

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**Introduction:** The increased awareness of the financial impact associated with social determinants of health coincides with expectations of the Affordable Care Act (HR 3590) to improve care while reducing costs. The integration of behavioral health providers (BHPs) into primary care has demonstrated improved clinical outcomes. This study was designed with 2 aims, including the evaluation of the financial viability of an integrated care model in a rural setting and the demonstration of incorporating practice-based research into clinical work. **Method:** A rural health plan caring for 22,000 members funded a pilot project placing BHPs in 3 clinics to provide integrated care. Patient utilization of medical services for 6 months following BHP services was compared with baseline utilization. **Results:** The BHPs treated 256 unique patients, with a total of 459 consultations. The percentage of patients receiving BHP services varied between clinics (Clinic A = 1.4%, Clinic B = 2.7%, and Clinic C = 3.9%). A between-clinic analysis showed differences in medical claims data between baseline and post-BH services. The overall effect sizes for reduced medical utilization for patients at clinics B and C were very large, Hedge's  $g = -2.31$  and  $-4.79$ , respectively. Utilization of 4 of the services (emergency, lab, outpatient, and primary care) showed the large reductions in their costs. In contrast, the data for Clinic A showed no change. **Discussion:** Patients receiving behavioral health services within the integrated care model may decrease utilization of medical services following treatment, resulting in cost offset. Potential reasons for variability between clinics are discussed.

*Keywords:* rural health, cost offset, sustainability

Primary care medicine includes health conditions that are a complex mix of biopsychosocial factors. Research has highlighted the positive correlation between psychosocial stressors and increased utilization of health care services (Sadock, Auerbach, Rybarczyk, Aggarwal, & Lanoye, 2014). The increased awareness of the financial impact associated with the social determinants of health coincides with the expectations of the Affordable

Care Act (ACA; HR 3590) to improve patient care while reducing costs.

Emerging research has identified specific variables that may be potential markers for measuring both clinical and financial outcome in integrated care models. An empirical study by Cohen et al., (2015) identified five organizing constructs across integrated care practices, using the Reach, Effectiveness, Adoption, Implementation and Maintenance model (RE-AIM; Glasgow, Klesges, Dzewaltowski, Estabrooks, & Vogt, 2006). This model emphasizes the importance of "reach," or the ability to serve the targeted population, as one of the primary organizing constructs in assessing integrated care practices. Reach may also serve as a mediating variable influencing the outcome of population health programs, while simultaneously demonstrating financial viability to payers and improving clinical outcome (Balasubramanian et al., 2015).

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The secondary variable of “effectiveness” as outlined in the RE-AIM model (Glasgow et al., 2006) is directed at the impact of the integrated program on targeted outcomes. Financial sustainability, through the reduction in utilization of health services (or cost-offset), is one way to evaluate the effectiveness of an integrated care program. Previous research demonstrated the financial benefits of integrating behavioral health into the primary care setting (see Hodgson, Ivey, & Reitz, 2014, for a complete review). Franko (2015) noted that the integration of behavioral health resulted in an increase in primary care utilization, but a decrease in utilization of more expensive treatment options including a reduction in emergency care, specialty care and hospitalizations, leading to a 22% cost savings over a 3-year time period. The effectiveness of the integrated care model as measured by cost offset, or the value opportunity of integrated care, has been used to demonstrate the viability of the model (Cummings, O’Donohue, & Cummings, 2009; Friedberg, Schneider, Rosenthal, Volpp, & Werner, 2014) and advocate for changes in payment reform to further support integration (Miller et al., 2017). While current research supports the benefit of reach and effectiveness as a component of integrated care, this study expands on those concepts looking at these variables within a rural, Medicaid population using claims data as a way to assess both reach (number of new patients seen by the behavioral health provider) and effectiveness (as measured by cost-offset).

### Project Goals

The primary aim of this research was to demonstrate the value of an integrated behavioral health program within primary care practices. “Reach” was identified as a salient variable to ensure that the behavioral health program was benefitting both providers and patients in meeting the needs of the clinic population. “Effectiveness” as measured by a reduction in medical claims could demonstrate the financial benefit of the integrated care program.

The secondary aim was to demonstrate an ability for practicing clinicians to conduct practice-based research as a component of their clinical role, demonstrating benefit for local patients, providers, and health plan administrators, and simultaneously contributing to the larger

base of empirical literature supporting integrated care. It is believed this model for practice-based research can easily be replicated within other small, rural clinics interested in demonstrating the potential systemic cost benefit of integrating behavioral health services.

## Method

### Setting

Yamhill Community Care (YCC) is one of 16 coordinated care organizations established in Oregon to manage the care of residents receiving their health care through Medicaid. The YCC manages the risk for 22,000 members in Yamhill County, a rural area with a total population of 96,000. Through a Project Innovation Grant, the YCC provided seed-funding for a pilot program to establish integrated behavioral health care in three primary care clinics. The projects were expected to demonstrate patient outcome as well as long-term financial sustainability.

The integrated care program for all clinics was based on the model suggested by Robinson and Reiter (2007); all three of the Behavioral Health Providers (BHPs), the clinic physicians, and administration received training in the model. The BHPs were expected to work in a brief-resolution focused model, using warm hand-offs with their respective schedules built for 20-min appointments. It was expected that patients would average three sessions per episode of care. We waited to begin data collection until all clinics had at least one year of experience with the model.

To ensure sufficient provider training and understanding of the model, all behavioral health providers completed a 40-hr “bootcamp” training. The training included a comprehensive overview of the behavioral health model as outlined by Robinson and Reiter (2007), program startup, interdisciplinary communication and working effectively as part of a multidisciplinary team, and evidence-based interventions for common behavioral health and medical presentations within a primary care setting. Following the training, providers received in-clinic support during their initial 2 weeks of start-up and continue to attend monthly consultation meetings emphasizing model adherence, and best practices.

## Study Development

Following the grant award, the administrative leadership of the YCC wanted evidence of program effectiveness and sustainability. Multiple conversations with the plan's Medical Director and board level stakeholders clarified two program priorities, which could be assessed via a practice-based approach to research. The stakeholders wanted to know the impact behavioral health services could have on population-based care as measured by the percentage of the patients who would receive services. In addition, they were interested in a potential reduction in utilization of high-intensity services such as emergency department utilization, hospitalization costs, care received by specialty level providers, and so forth. Given that practicing clinicians and health plan administrators were collaborating on the evaluation of services, we needed ecologically valid outcome measures that were accessible and feasibly collected. The accessibility of medical claims data available through the sole Medicaid coverage provider (YCC) allowed us to assess both population reach and effectiveness, as measured by medical claims data, for the time period before and after the patient received behavioral health services. To obtain access to claims data, 3 separate planning meetings (approximately 1 hr each) were conducted with stakeholders to increase buy-in and discuss the importance of using systemic level data to evaluate program effectiveness. The frequency and claims data was readily accessible to the YCC business analyst and easily understandable for clinicians and health care administration.

## Participants

Three clinics participated in the project. Clinic A is a Federally Qualified Health Center "lookalike," with 10 providers caring for 7,700 total patient population and approximately 27% (6,000) of the YCC members; the other two clinics serve a patient population who have both private insurance and a smaller percentage of patients insured through Medicaid. Specifically, Clinic B has 17 providers serving 15,800 total patients and approximately 17% (3,800) of the YCC population, with Clinic C employing 19 providers serving 17,390 total patients and approximately 7%

(1,600) of the YCC population. The remaining members of the YCC are served by smaller clinics throughout the rural county.

## Procedure

Claims data were pulled for those Medicaid patients who consulted with the BHP during the 6-month period, January 1, 2015, through June 30, 2015. The utilization data included claims for the following services: primary care visits, inpatient specialty care, outpatient specialty care, Emergency Department utilization, ambulance, lab and facility charges for hospitalization. These data served as a baseline for respective patient utilization and were compared with medical utilization and claims data pulled for the 6 months following the patients' respective episode of care with the BHP.

The medical claims data collected from the YCC served a dual purpose as the data also provided the way to assess reach. Systemic level data showed the total number of YCC patients assigned to each of the respective clinics which allowed for a simple calculation of the percentage of the patients served versus the total number of patients assigned to receive care at each clinic.

## Results

### Reach

Of the 11,400 YCC patients within the three clinics, the BHPs provided care to a total of 256 YCC patients during the measurement time period of January 1, 2015, to June 30, 2015. Frequency data was analyzed to review the reach of the BHP in each clinic. Utilization varied across clinics. During the established measurement period, 89 patients receiving services at Clinic A, 1.4% of the clinic's 6,000 CCO assigned patients. At Clinic B, 104 patients, 2.7% of the CCO assigned 3,800 patients, received behavioral health services. At Clinic C, 63 patients, 3.9% of the CCO assigned 1,600 patients received care. Of the total individuals seen, 168 (66%) were female and 88 (35%) were male. There were 69 (27%) patients who were 17 years of age or younger, and 187 (73%) patients who were 18 years of age and older.

## Effectiveness

For the purposes of this study, effectiveness was measured by the proxy of cost offset. The results of a between-clinic analysis (Table 1) shows the summary of claims data (i.e., means and standard deviations) for three clinics across seven medical services. The table also shows the effect size (Hedge's *g*) for all the pre—post changes. A comparison of the three clinics revealed that two of the three clinics (B and C) had very large reductions in their costs while one clinic (A) had no change. Specifically, the overall effect size (i.e., the weighted average using a fixed-effect model) for clinic A was so small that it indicated there was no change in cost over time, Hedge's *g* = .19. In comparison, the overall effect sizes for clinics B and C were very large, Hedge's *g* = -2.31 and -4.79, respectively. Furthermore, of the effect sizes for the seven services, five of six for Clinic B and seven of seven for Clinic C were in the predicted, negative direction.

A comparison of the seven services revealed that four of the services [emergency, (Hedge's *g* = -8.40), lab (Hedge's *g* = -2.03), outpatient (Hedge's *g* = -1.60), and primary care (Hedge's *g* = -4.19)] had very large effect size values with reductions in costs. Two [inpatient (Hedge's *g* = -0.12) and facilities (Hedge's *g* = 0.03)] demonstrated an effect size so small they indicated that there was no change, and one (ambulance) had a large increase in costs.

## Discussion

### Reach

Clinic C had the greatest proportion of reach at 3.9%, followed by Clinic B with 2.7% and Clinic A with 1.4%. The results are in line with prior findings of REACH in clinics depending primarily on clinician discretion for referral for behavioral health services (e.g., Balasubramanian et al., 2015, identified a mean of 7.9% REACH with a 95% confidence interval ranging from 0.6%–15.1%). These results indicate that ongoing work can be done to further the level of reach within each of the YCC clinics to better meet the needs of the YCC patients.

Table 1  
Claims Data for Services Provided by Clinic Between-Clinic Analysis Results

Medical services	Claims data (in dollars) Clinic A			Claims data (in dollars) Clinic B			Claims data (in dollars) Clinic C		
	1/1/15–6/30/15	7/1/15–12/31/15	Effect size	1/1/15–6/30/15	7/1/15–12/31/15	Effect size	1/1/15–6/30/15	7/1/15–12/31/15	Effect size
Primary care visit	60,386 (1,825)	52,233 (727)	-5.12	79,921 (1,903)	71,507 (2,818)	-3.38	59,415 (2,848)	33,286 (696)	-10.15
Inpatient specialty	6,299 (1,084)	15,097 (1,228)	7.53	8,730 (669)	4,378 (893)	-5.25	21,377 (3,299)	6,840 (1,388)	-5.01
Outpatient specialty	12,552 (640)	8,410 (390)	-7.36	7,628 (519)	12,132 (473)	8.99	13,800 (540)	5,612 (589)	-14.31
Emergency department	22,987 (801)	15,349 (784)	-9.60	10,727 (417)	8,019 (331)	-7.04	10,030 (741)	4,323 (170)	-8.41
Ambulance	5,765 (362)	7,528 (756)	2.61	420.62 (NA)	878 (NA)	—	4,537 (736)	2,136 (243)	-3.38
Lab	7,589 (210)	7,209 (170)	-1.96	5,817 (142)	2,884 (83)	-25.04	233 (33)	110 (1)	-3.29
Hospital (facility)	150,199 (11,896)	162,289 (9,203)	1.12	84,630 (4,866)	76,840 (3,850)	-1.75	215,687 (26,873)	119,067 (18,443)	-4.06
Total costs	265,780	268,116		197,875	176,641		325,082	171,378	

Note. NA = not applicable.

<sup>1</sup> The SDs were estimated on the basis of the sample's reported median and range according to the method devised by (Hozo, Djulbegovic, & Hozo, 2005). <sup>2</sup> Hedge's *g* is the effect size we calculated. <sup>3</sup> Negative effect sizes indicate cost reductions.

## Effectiveness

Similar to the outcome for reach measurement, Clinic C showed the greatest change in total cost offset while Clinic A showed only minimal change in cost to the system. The results of this study are in-line with previous research showing the possibility of reduced cost through decreased utilization of other medical services following behavioral health treatment (Cummings et al., 2009; Hodgson et al., 2014). Similarly, the results for Clinics C and B are consistent with prior research showing a total systemic cost reduction through a PCMH approach to health care (e.g., Franko, 2015).

The primary aim of this evaluation was to demonstrate the value sustainability necessary through “effectiveness” to maintain the model beyond the initial seed-funding. It is important to note that while every clinic didn’t show a reduction in medical claims, the systemic savings achieved by clinics B and C were sufficient to cover the cost of the initial funds provided by the YCC and ensure the ongoing fiscal sustainability of the program.

The “effectiveness” variable is particularly salient for rural health care settings. Early literature in integrated health care identified the uniqueness of the rural setting; rural areas typically have fewer resources than in urban or suburban areas, but similar clinical complexity (Admundson, 2001). Interventions that reach a maximum number of patients may improve patient outcome while reducing medical utilization, and simultaneously support the medical providers who are expected to manage the biopsychosocial needs of the patient.

## Construct Relationship

The organizing constructs identified by Cohen et al. (2015) may provide a heuristic for a potential explanation of between clinic differences. The reach and cost offset data showed a similar pattern, in that Clinic C’s had the greatest reach and similarly showed the greatest cost offset, correspondingly Clinic A showed the smallest reach and no cost offset.

The more challenging finding of this project was the variability between clinics, including both reach and medical utilization. In exploring the other constructs, none of the clinics implemented care pathways or had significant varia-

tion in provider location. However, we weren’t able to assess the differences between clinics in patient transitions, or perhaps more important, the understanding and shared commitment to the mental model of integrated care. From a systems’ perspective, the shared mental model may be a metaconstruct that influences the development and ongoing revisions necessary in a successful integrated care practice.

## Limitations

The primary area for improvement is to develop practical, standardized assessments of model fidelity at the clinic and provider level. As this project relied on claims data, we cannot explore the differential impact of model variables including warm handoffs, team huddles, chart scrubbing, shared visits or patient registries on outcome. Future efforts to empirically track model variables and correlate the level of integration to claims data will clarify the relative impact of model variables and demonstrate the benefit of model adherence.

Reach is an accessible indicator of patient and provider utilization of behavioral health services. However, it is possible that reach reflects more than utilization, it may also be an important indicator of model adherence, with those providers and clinics adhering more closely to an integrated model of care able to serve a greater number of patients.

A secondary limitation was the study design. The utilization of pre- and postdata collection focusing on two, 6-month time periods is limited in generalizability. It is possible that factors outside of the episode of care with the BHP explain the reduction in claims. Future studies may wish to consider tracking the claims data and utilization of services for individual patients immediately before and after the episode of care with the BHP, or gathering utilization data over multiple months to gain further information with utilization trends, as opposed to the utilization over two static time periods.

## Lessons Learned

In retrospect, we found effective strategies as well as many ways to improve practiced-based research in a rural health care setting. Effective strategies included close communication with stakeholders. This close communication allowed us to choose the most relevant outcome

Table 2  
*How We Did It: Using Claims Data*

Practice-based research	Making it rigorous	Practical strategies for implementation
Examine current literature	Complete a thorough review of literature looking at areas of interest, specifically examining current “holes” in the literature or areas where the research base can be expanded.	Identification of opportunities within current settings that may contribute to the literature, followed by a study design that incorporates feasibility and objectives consistent with both local, systemic need and the larger research base.
Identify priorities	Identify targeted, measurable outcomes that are meaningful practically and to system stakeholders.	Conversations with the plan’s Medical Director and board level stakeholders clarified two program priorities, which could be assessed via practice-based research.
Operationalize outcomes of interest	Stakeholder priorities included understanding the impact behavioral health services on population-based care as measured by: <ol style="list-style-type: none"> <li>1. The percentage of the patients who would receive behavioral health services.</li> <li>2. A potential reduction in utilization of high-intensity/high-cost services.</li> </ol>	A review of the stakeholders’ priorities determined that they fit nicely into the RE-AIM framework. Stakeholder priorities were operationalized as: <ol style="list-style-type: none"> <li>1. Reach</li> <li>2. Effectiveness</li> </ol>
Data collection	Identify ecologically valid outcome measures that are both accessible and feasibly collected.	The accessibility of medical claims data available through the sole Medicaid coverage provider (YCC) allowed access to data related to both population reach and effectiveness, as measured by the patients assigned to each of the participating clinics, as well as medical costs.
Increase buy-in	Utilizing systemic vs clinic level data was identified as the best strategy to effectively and independently analyze the program’s effectiveness.	To obtain access to claims data, 3 separate planning meetings (approximately 1 hr each) were conducted with stakeholders to increase buy-in and discuss the importance of using systemic level data to evaluate program effectiveness

measures. By identifying the priorities of our stakeholders, we were able to increase the meaningful nature of the data collected, ultimately furthering systemic buy-in and programmatic support. In addition, with this stakeholder collaboration, it became apparent that feasibility of data collection and decreased burden on the system given limited resources was also essential. Operationalizing a dependent variable (medical claims data) in a way that didn’t require unrealistic expectations of others in regards to accessibility improved the systemic coordination of data collection and opened accessibility to utilize medical claims data for this and future studies. Last, the ability to demonstrate the alignment of our study design and goals with current research and practice were also effective in communicating our program’s

consistency with the literature and standard of care.

As practicing clinicians, our small “grass roots” practice-based approach yielded promising results. For clinicians interested in similar approaches we’ve highlighted several specific ways to increase rigor as well as practical strategies for implementation (Table 2).

## References

- Admundson, B. (2001). America’s rural communities as crucibles for clinical reform: Establishing collaborative care teams in rural communities. *Families, Systems, & Health, 19*, 13–23. <http://dx.doi.org/10.1037/h0089458>
- Balasubramanian, B. A., Fernald, D., Dickinson, L. M., Davis, M., Gunn, R., Crabtree, B. F., &

- Cohen, D. J., (2015). REACH of interventions integrating primary care and behavioral health. *Journal of the American Board of Family Medicine*, 28, S73–S85. <http://dx.doi.org/10.3122/jabfm.2015.S1.150050>
- Cohen, D. J., Balasubramanian, B. A., Davis, M., Hall, J., Gunn, R., Stange, K. C., . . . Miller, B. F. (2015). Understanding care integration from the ground up: Five organizing constructs that shape integrated practices. *Journal of the American Board of Family Medicine*, 28(Suppl. 1), S7–S20. <http://dx.doi.org/10.3122/jabfm.2015.S1.150050>
- Cummings, N. A., O'Donohue, W. T., & Cummings, J. L. (2009). The financial dimension of integrated behavioral/primary care. *Journal of Clinical Psychology in Medical Settings*, 16, 31–39. <http://dx.doi.org/10.1007/s10880-008-9139-2>
- Franko, B. (2015, November 21). Measuring integrated care: “Or trying to weight a moving wave”. Retrieved <https://cherokeecademy.wordpress.com/2015/11/21/measuring-integrated-care-or-trying-to-weigh-a-moving-wave/>
- Friedberg, M. W., Schneider, E. C., Rosenthal, M. B., Volpp, K. G., & Werner, R. M. (2014). Association between participation in a multipayer medical home intervention and changes in quality, utilization, and costs of care. *Journal of the American Medical Association*, 311, 815–825. <http://dx.doi.org/10.1001/jama.2014.353>
- Glasgow, R. E., Klesges, L. M., Dziewaltowski, D. A., Estabrooks, P. A., & Vogt, T. M. (2006). Evaluating the impact of health promotion programs: Using the RE-AIM framework to form summary measures for decision making involving complex issues. *Health Education Research*, 21, 688–694. <http://dx.doi.org/10.1093/her/cyl081>
- Hodgson, J. L., Ivey, L. C., & Reitz, R. S. (2014). Creating the financial future of integration in primary care: State and national innovations. *American Journal of Health Studies*, 29, 215–229.
- Hozo, S. P., Djulbegovic, B., & Hozo, I. (2005). Estimating the mean and variance from the median, range, and the size of a sample. *BMC Medical Research Methodology*, 5, 13. <http://dx.doi.org/10.1186/1471-2288-5-13>
- Miller, B. F., Ross, K. M., Davis, M. M., Melek, S. P., Kathol, R., & Gordon, P. (2017). Payment reform in the patient-centered medical home: Enabling and sustaining integrated behavioral health care. *American Psychologist*, 72, 55–68. <http://dx.doi.org/10.1037/a0040448>
- Robinson, P., & Reiter, J. (2007). *Behavioral consultation and primary care: A guide to integrating services*. New York, NY: Springer. <http://dx.doi.org/10.1007/978-0-387-32973-4>
- Sadock, E., Auerbach, S. M., Rybarczyk, B., Aggarwal, A., & Lanoye, A. (2014). The relationship of life stressors, mood disorder, and health care utilization in primary care patients referred for integrated behavioral health services. *Journal of Nervous and Mental Disease*, 202, 763–766. <http://dx.doi.org/10.1097/NMD.000000000000195>