

Evaluation of the Frontier Community Health Care Coordination Network Grant

I. Introduction

Community health workers (CHWs) have gained national recognition for their role in addressing health disparities and increasingly are being integrated into the U.S. health care delivery system. Also known as lay health workers/advisors, promotoras, peer health promoters, or peer/community outreach workers, CHWs are either paid employees or volunteers who work with community organizations or local health care systems in both urban and rural environments. They usually share ethnicity, language, socioeconomic status, and life experiences with the community members they serve.ⁱ CHWs, who most often work with underserved and vulnerable populations where there are significant health care needs, can typically provide a range of services such as interpretation and translation, culturally appropriate health education and information, advocacy for individual and community health needs, and some direct services, such as first aid and blood pressure screening, depending on what training they have.ⁱⁱ CHW programs have shown promising results for chronic disease management^{iii,iv,v,vi} and have demonstrated positive health outcomes for clients with diabetes^{vii,viii,ix,x,xi,xii,xiii} and heart disease.^{xiv,xv,xvi}

On the federal level, the passage of the Patient Protection and Affordable Care Act (ACA) in 2010 introduced an opportunity to sustain CHWs' role through a variety of pathways. The ACA allowed Congress to allocate funding to establish a federal program that supports the use of CHWs in Medically Underserved Areas (MUAs). The ACA also provided the Centers for Disease Control and Prevention with funding to award grants to eligible communities to promote a community health workforce. Most recently, in 2014, the Centers for Medicare & Medicaid Services (CMS) created a final rule that opens up payment opportunities for preventive services by non-licensed individuals. This rule may allow health systems to bill for paraprofessional staff, such as CHWs.

Frontier Community Health Care Network Coordination Grant

In 2011, the Federal Office of Rural Health Policy (FORHP) in the Health Resources and Services Administration (HRSA) awarded a Frontier Community Health Care Network Coordination (FCHCNC) grant to the Montana Department of Public Health and Human Services. The FCHCNC program was a community-based, patient-centered clinical service coordination and health promotion model that operated from September 2011 to August 2015. The grant was intended to support clinical service coordination by a centrally located care transitions coordinator (CTC) and local CHWs across a network of primary care providers and Critical Access Hospitals (CAHs) at 11 pilot sites.

Target Population

The pilot sites reported a total of 104 active, participating clients during the study period. Clients were elderly and most were on fixed incomes. Cardiovascular disease (including hypertension) was the most prevalent condition reported by clients (43.5 percent of clients), followed by chronic obstructive pulmonary disease (26.8 percent), diabetes (24.4 percent), congestive heart failure (14.9 percent), and coronary artery disease (12.5 percent). Seventy-six percent of clients were Medicare beneficiaries, 8 percent were Medicaid enrollees, and 7 percent were dual-eligibles (i.e., covered by both Medicare and Medicaid).

Intervention

The CTC, a clinically trained and licensed registered nurse, oversaw CHWs in participating CAHs that were focused on improving care transitions and health outcomes for clients by reducing or eliminating preventable hospital admissions and readmissions. The CHWs attended the equivalent of a full-day training session that covered topics such as CHWs' roles, safety and liability issues, disease-specific health education, assessment and planning tools for working with clients, and data collection. Ongoing continuing education was provided by the CTC during monthly teleconference calls with CHWs.

The CHWs were not restricted to specific intervention goals or to a set of activities to accomplish those goals. Intervention goals provided by CHWs and clients were grouped into eight categories: improving home safety, reducing the need for emergency room visits, helping clients stay at home, ensuring medication compliance, supporting follow-up with primary care providers, developing emotional support, improving health, and identifying resources to support activities of daily living. The length of interventions for enrolled clients ranged from 6 weeks to 16 months; the average intervention length was approximately 5 months. Intervention goals and supporting activities varied across sites. The program was intended to provide patient-centered support tailored to the needs of each client, but CHWs were prohibited from providing direct health care services for clients.

Clients were recruited into the program through referrals from health care providers and community organizations, such as senior centers and faith-based organizations. Flyers advertising the program were distributed at local clinics, hospitals, senior centers, and other local businesses.

II. Evaluation Design

HRSA funded a 3-year evaluation of the FCHCNC program, beginning in September 2012 and running through September 2015. The evaluation was conducted by Altarum Institute, in partnership with NORC at the University of Chicago and IMPAQ International. Evaluation goals were to understand the characteristics of the participant population, assess the FCHCNC program against a patient-centered medical home case management model, and determine whether the program improved client outcomes (e.g., facilitated independent living, improved access to health care services, improved care transitions, was cost-effective). The evaluation used a mixed methods design and drew on multiple sources of data, including pilot site administrative data, visits to pilot sites, telephone interviews with key informants, Medicare and Medicaid administrative claims data, and a client survey.

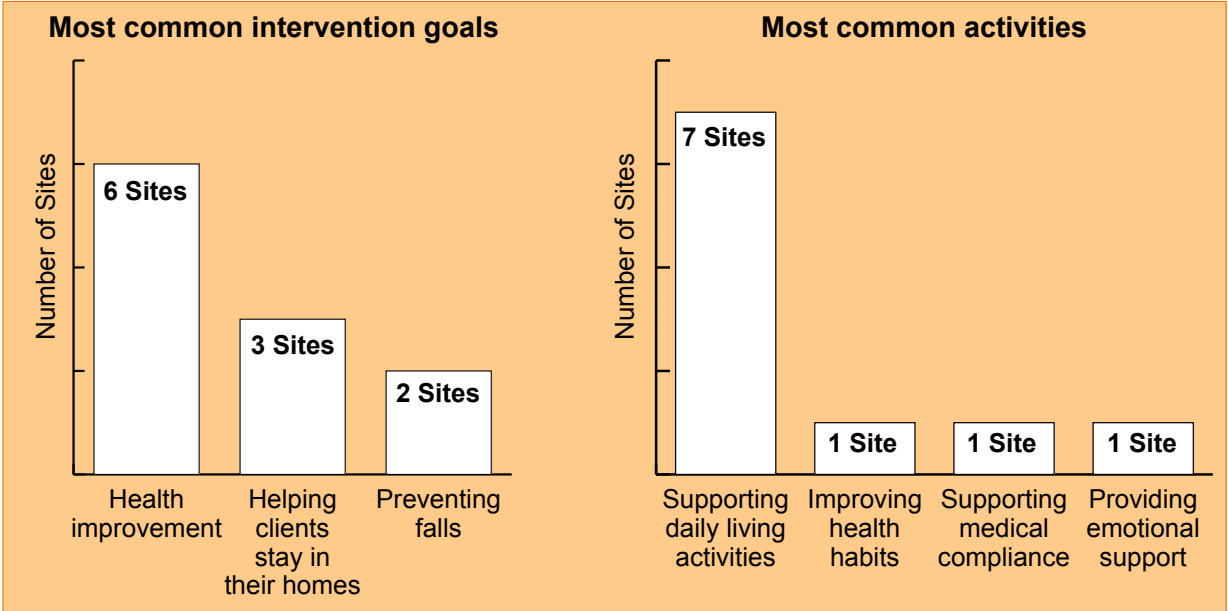
Sampling and Analysis

The target population consisted of all clients admitted to a referral hospital who had at least two chronic conditions of interest. A total of 168 individuals met the study criteria and were informed about the FCHCNC program; 104 of them enrolled. Several approaches were used to analyze the data. Qualitative data from site visits, key informant interviews, and program administrative data were analyzed for common themes. Descriptive statistics were tabulated to describe the demographic and health characteristics of the participant population and of survey respondents. Descriptive statistics were also tabulated from client survey and program administrative data to assess program implementation and client-reported outcomes. Two analytic methods were used on the Medicare and Medicaid administrative claims data, including a pre-/post-comparison of means and a difference-in-difference regression model.

III. Findings

A number of key findings that emerged from the evaluation:

- The most common intervention goals for pilot sites were health improvement (6 sites), helping client stay in their homes (3 sites), and preventing falls (2 sites).
- CHWs performed six primary activities to achieve these goals: supporting daily living activities such as sharing information and arranging for services, supporting medication compliance, improving health habits, providing emotional support, and preventing falls. The most common activities reported by CHWs were supporting daily living activities (7 sites).



- CHWs and other key staff reported that the program had a positive impact on overall quality of life and reduced the cost of care for some clients.
- Seventy-five percent of respondents felt that participating in the program was easy, and the majority of respondents reported that they understood the program.
- An examination of the data—particularly a comparison of program beneficiaries and non-program beneficiaries—suggests that the intervention was effective in recruiting the clients who most needed the intervention provided.
- There was a statistically significant decline in both hospitalizations ($P < .05$) and 30-day readmissions ($P < .05$) for clients participating in intervention for at least a full year.
- There were significant reductions in primary care office-based physician visits ($P < .10$) and hospital admissions for heart failure ($P < .10$), although the declines for these two measures were less significant than the declines in hospitalizations and readmissions.
- Challenges to implementation included factors related to the CHWs: Some CHWs had limited access to resources and transportation, and all were restricted to working 10 to 20 hours per week, which was insufficient for sites with greater demand and a higher number of enrolled clients. Leadership turnover, a lack of staff and provider buy-in, and financial stress among some participating facilities also challenged implementation.

IV. Limitations

Overall, the analysis provides important evidence that the program can reduce hospitalizations. However, the findings should be interpreted cautiously. Study limitations include missing data, invalid or inaccurate data, loss of client data due to CHW turnover, the possibility that the samples are not representative of the participant population, and the potential that not all program impacts were captured. Additionally, the overall number of recruited clients was small, and the effective sample size for the survey and Medicare claims analysis were further reduced for multiple reasons; it is unclear to what extent the survey or Medicare claims analysis results may be generalized, since they were based on responses from a very small fraction of beneficiaries.

V. Discussion

The CHW pilot program in frontier Montana addressed many unmet client needs and filled an important community void by linking clients to health and human services, which was significant considering that access to health care, behavioral and mental health services, and other community-based resources was limited in these frontier communities. The program had a positive impact on quality of life and reduced the cost of care as reported by some clients. Many staff said that participants had reported improved overall health and well-being, improved ability to stay in their homes, increased access to community-based resources, and fewer hospital admissions. Sixty-two percent of survey respondents felt that the program taught them about their health conditions, and 86 percent reported that the program had improved their lives.

One of the most successful components of the CHWs' work was providing consistent communication and social/emotional support for their clients. CHWs noted the importance of establishing a positive relationship with clients before engaging them in the intervention activities directly. This population was independent in nature and often did not seek health care until immediate attention was needed.

An analysis of the qualitative data revealed that characteristics such as being self-motivated, patient, and comfortable working with elderly clients, contributed to CHW success. An accurate job description, appropriate screening, and buy-in from supervisors were noted during the key informant interviews and site visits as important factors in ensuring that successful candidates were hired as CHWs. The CHWs most successful in implementing the program also had some clinical background, such as prior experience working as a certified nursing assistant (CNA).

Those CHWs who found implementation challenging reported that working 10 to 12 hours a week was not sufficient to support existing clients, completing reporting requirements, and taking on additional referrals. Limited resources also affected CHWs' ability to do their jobs: Most CHWs had no dedicated office space or facility-provided computer and had minimal access to electronic medical records, issues that limited their ability to track client information and communicate with local health care providers. CHWs also had no formal computer training to support the evaluation data collection activities. CHWs reported difficulty understanding the data elements, filling out the data forms, and maintaining the program administrative data. A high rate of CHW turnover among the pilot sites also contributed to client data not being consistently collected or appropriately maintained as new CHWs came on board. Some clients were lost to follow-up during staff transitions. The lack of client data made the claims analysis incomplete, due to missing Medicaid identification numbers.

Factors at the participating sites also affected program implementation. Throughout the evaluation, leaders at some pilot sites commented on the financial instability and vulnerability of their hospitals. Leadership turnover and the financial challenges of these health care facilities affected the sites' ability to support the pilot project. At half of the sites, key informants described the lack of provider support as the biggest challenge for program implementation. Some providers had difficulty grasping the concept of the CHW role. Without the providers' support, there were few referrals to the program and less coordination on the clients' behalf.

VI. Recommendations

Although the CHW program was implemented differently in each community, based on the individual CHWs and goals of the CAHs, clients reported their health and social needs were addressed and their quality of life was enhanced. The CHW pilot program holds great promise for other frontier and rural communities that are looking for solutions to help elderly residents age in place. The following are recommendations to communities considering implementing this care coordination model in the future.

- **Assess the impact of isolation on client activation.** One key benefit noted by CHWs, administrators, clinical staff, and clients was the human interaction that CHWs provided to clients. Some elderly clients felt comfortable remaining in their homes when they knew that they had someone regularly checking on them and whom they could call, if needed. The program identified preventing isolation as an unmet need for this population. A key tenet in future CHW interventions in rural and frontier areas is to include an evaluation component that addresses a client's sense of isolation.
- **Obtain leadership commitment and provider buy-in.** Stakeholders at all levels need to be committed to the implementation process for the long term, since it may take several years to implement a program and see positive outcomes. Education or training of stakeholders at the onset of implementation is important in obtaining support.
- **Include a CTC as part of the CHW team model.** This CHW intervention was successful due to the CTC's ability to work closely with the CHWs during the intervention. The CTC provided monthly education through telemedicine conference calls, offering ongoing training regarding specific topics of interest, as well as providing CHWs an opportunity to share lessons learned and successes. Between monthly conference calls, the CTC was regularly in touch with all CHWs to provide continuing support.
- **Secure adequate human, financial, and material resources to implement the program.** Implementing and sustaining a successful care coordination program takes a variety of resources. Funding and other material resources—such as office space, equipment, and supplies—are important. The need for ongoing funding is the greatest barrier to sustaining this CHW pilot program, particularly during this time of great financial stress for frontier health care providers. Opportunities to reimburse care coordination activities through the ACA may help sustain the CHW program for some frontier CAHs. It is also essential that programs have sufficient personnel resources to meet enrollment/participation targets and support the program evaluation.

- **Include behavioral and mental health as part of CHWs' training.** Although they did not receive referrals for clients diagnosed with a serious mental illness, CHWs in this pilot worked with clients who had a variety of behavioral and mental health conditions, such as depression, schizophrenia, and alcoholism. These behavioral and mental health issues, coupled with isolation and limited access to behavioral and mental health practitioners, contributed to clients' health challenges.
- **Start evaluation planning before the program begins, and involve program staff.** Planning for a successful evaluation should begin before the program is implemented. Evaluating a program can be challenging if stakeholders do not plan for evaluation during initial program development and prior to implementation. Robust evaluation metrics that are developed and implemented at program initiation are key to providing meaningful information regarding a program's impact on clients and overall health care costs and utilization. Involving program staff in the evaluation design process helps ensure that the evaluation will be better able to capture the breadth of CHW activity. The authors also suggest providing in-person training on the evaluation components and ongoing technical support as part of any program implementation.
- **Develop a sustainability strategy.** Many of the interviewees, including administrators and CHWs, identified sustainability as a key concern, particularly when the community has come to rely on the CHW program. While some facilities were able to sustain care coordination activities through grant funding, there is no billing code for continuing CHW services. Identifying options for sustainability early would provide pilot sites guidance and a roadmap for making the program self-sustainable, with sufficient time to secure funding prior to program end.

References

- i. Brownstein, J. N., & Allen, C. (2015). *Addressing chronic disease through community health workers: A policy and systems-level approach* (2nd ed.). Atlanta, GA: Centers for Disease Control and Prevention, CDC Division for Heart Disease and Stroke Prevention.
- ii. Ibid.
- iii. Blewett, L. A., & Owen, R. A. (2015). Accountable care for the poor and underserved: Minnesota's Hennepin health model. *American Journal of Public Health*, 105(4), 622–624.
- iv. Krieger, J. W., Takaro, T. K., Song, L., & Weaver, M. (2005). The Seattle-King County Healthy Homes Project: A randomized, controlled trial of a community health worker intervention to decrease exposure to indoor asthma triggers. *American Journal of Public Health*, 95(4), 652–659.
- v. Rosas, L. G., Thiyagarajan, S., Goldstien, B. A., Drieling, R. L., Romero, P. P., Ma, J., . . . Stafford, R. S. (2015). The effectiveness of two community-based weight loss strategies among obese, low-income US Latinos. *Journal of the Academy of Nutrition and Dietetics*, 114(4), 537–550.e2.
- vi. Taylor, V. M., Basdtani, R., Burke, N., Talbot, J., Sos, C., Liu, Q., . . . Yasui, Y. (2013). Evaluation of a hepatitis B lay health worker intervention for Cambodian Americans. *Journal of Community Health*, 38(3), 546–553.
- vii. slam, N. S., Zanolwiak, J. M., Wyatt, L. C., Chun, K., Lee, L., Kwon, S. C., Trinh-Shevrin, C. (2013). A randomized-controlled, pilot intervention on diabetes prevention and healthy lifestyles in the New York City Korean community. *Journal of Community Health*, 38(6), 1030–1041.
- viii. Kieffer, E. C., Welmerink, D. B., Sinco, B. R., Welch, K. B., Clayton, E. M., Schumann, C. Y., Uhley, V. E. (2014). Dietary outcomes in a Spanish-language randomized controlled diabetes prevention trial with pregnant Latinas. *American Journal of Public Health*, 104(3), 526–533.
- ix. Otero-Sabogal, R., Arretz, D., Siebold, S., Hallen, E., Lee, R., Ketchel, A., . . . Newman, J. (2010). Physician-community health worker partnering to support diabetes self-management in primary care. *Quality in Primary Care*, 18(6), 363–372.

- x. Prezio, E. A., Cheng, D., Balasubramanian, B. A., Shuval, K., Kendzor, D. E., & Culica, D. (2013). Community Diabetes Education (CoDE) for uninsured Mexican Americans: A randomized controlled trial of a culturally tailored diabetes education and management program led by a community health worker. *Diabetes Research and Clinical Practice*, 100(1), 19–28.
- xi. Rothschild, S. K., Martin, M. A., Swider, S. M., Tumialán Lynas, C. M., Janssen, I., Avery, E. F., Powell, L. H. (2014). Mexican American trial of community health workers: A randomized controlled trial of a community health worker intervention for Mexican Americans with type 2 diabetes mellitus. *American Journal of Public Health*, 104(8), 1540–1548.
- xii. Spencer, M. S., Rosland, A. M., Kieffer, E. C., Sinco, B. R., Valerio, M., Palmisano, G., . . . Heisler, M. (2011). Effectiveness of a community health worker intervention among African American and Latino Adults with type 2 diabetes: A randomized controlled trial. *American Journal of Public Health*, 101(12), 2253–2260.
- xiii. Tang, T. S., Funnell, M., Sinco, B., Piatt, G., Palmisano, G., Spencer, M. S., . . . Heisler, M. (2014). Comparative effectiveness of peer leaders and community health workers in diabetes self-management support: Results of randomized controlled trial. *Diabetes Care*, 37(6), 1525–1534.
- xiv. Allen, J. D., Himmelfarb, C. R., Szanton, S. L., Bone, L., Hill, M. N., Levine, D. M.. (2011). COACH Trial: A randomized controlled trial of nurse practitioner/community health worker cardiovascular disease risk reduction in urban community health centers. *Circulation: Cardiovascular Quality and Outcomes*, 4(6), 403–411.
- xv. Koniak-Griffin, D., Brecht, M. L., Takayanagi, S., Villegas, J., Melendrez, M., & Balcázar, H. (2015). A community health worker-led lifestyle behavior intervention for Latina (Hispanic) women: Feasibility and outcomes of a randomized controlled trial. *International Journal of Nursing Studies*, 52(1), 75–87.
- xvi. Krantz, M. J., Coronel, S. M., Whitley, E. M., Dale, R., Yost, J., & Esacio, R. O. (2013). Effectiveness of a community health worker cardiovascular risk reduction program in public health and health care settings. *American Journal of Public Health*, 103(1), e19–e27.
- xvii. Martinez, J., Ro, M., Villa, N. W., & Powell, W. K. (2011). Transforming the delivery of care in the post–health reform era: What role will community health workers play? *American Journal of Public Health*, 101(12), e1–e5.
- xviii. Brownstein, J. N. & Allen, C. (2015).
- xix. Ibid.