

Integration of a *Promotora*-Led Self- Management Program Into a System of Care

Purpose

The purpose of this article is to describe the integration of a *promotora*-led self-management component into a system of care and assess the influence of this program on indicators of metabolic control over time.

Methods

Gateway Community Health Center is a federally qualified health center in Laredo, Texas, that serves a predominantly Hispanic population. Gateway integrated self-management support into care for people with diabetes by incorporating *promotora*-led self-management services into the clinic structure, operations, and patient visits. The self-management program included education, goal setting, depression screening with symptom follow-up, and support groups after course end. Indicators of metabolic control, HbA1c, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and triglycerides were compared at baseline and at 12 months.

Results

The integration of *promotora*-led self-management services into the system of care allowed for continual improvements of self-management services in response to patient needs. Patients enrolled in the self-management course showed improved indicators of metabolic control that were sustained over time, and they reported a high level of goal achievement.

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Conclusions

The integration of the promotor-led self-management program into diabetes care at Gateway generated a system of referral, follow-up, feedback, and documentation that produced consistently high-quality clinical care.



Diabetes is a growing health concern in the United States. Within 10 years, prevalence rates rose from 3.2 per 100 people to 5.1 per 100 people.¹ Currently, there is no indication that rates will level off in the near future. In 2002, type 2 diabetes accounted for approximately 90% to 95% of all diabetes diagnoses in the United States.² Self-management strategies are used to optimize health outcomes in individuals with type 2 diabetes. Self-management programs have demonstrated improvements in knowledge, self-monitoring of blood glucose, and glycemic control among participants.³⁻⁵ However, not all of these benefits are well maintained over time.^{3,4} Furthermore, self-management programs tend to suffer high attrition rates.³ Efforts to create self-management programs that sustain positive outcomes over time are needed.

The Hispanic population is disproportionately affected by diabetes. From 2000 to 2002, the age-adjusted diabetes death rate was 64% higher among Hispanics than non-Hispanic whites.⁶ Furthermore, in US-Mexico border counties, the rate was almost 3 times as high among Hispanics as compared to non-Hispanic whites.⁶ Despite the growing need for intervention, there remains a gap in research addressing culturally appropriate approaches to diabetes self-management in the Hispanic community.^{7,8}

The Diabetes Initiative of the Robert Wood Johnson Foundation employed an ecological framework to guide the development of diabetes self-management programs across 14 diverse sites.⁹ After considering the multiple influences of the social, physical, and political environments on behavior, 6 key resources and supports were identified for self-management: individualized assessment, collaborative goal setting, skills enhancement, follow-up and support, access to community resources, and continuity of quality clinical care.⁹ To ensure the quality of primary care, systems that integrate self-management are needed. One approach to providing these resources

within the primary care setting is through the use of community health workers, or *promotores* ("health promoters"). The use of community health workers has been shown to be effective in assessment, goal setting, and support and follow-up.¹⁰⁻¹²

The purpose of this article is to describe the integration of a promotor-led self-management component into a system of care and assess the influence of this program on indicators of metabolic control over time.

Study Population

Gateway Community Health Center is a federally qualified health center located on the US-Mexico border in Laredo, Texas. More than 95% of the patients served by Gateway are Hispanic. More than one third of residents are below the poverty level,¹³ and two thirds of patients are uninsured. Approximately 20% of Gateway's adult patients have diabetes, which is the top medical diagnosis for the clinic. Patients with type 2 diabetes are referred by the medical providers to the diabetes self-management program. This report addresses the first 2 years of the program, from May 2003 through April 2005.

Program Description

System of Care

Gateway integrated self-management support into care for people with diabetes by incorporating promotor-led self-management services into the clinic structure, operations, and patient visits. Physicians, clinic managers, and staff, including *promotores*, collaborated to develop the self-management intervention. An important piece of the intervention was the preparation and training of *promotores* to conduct the self-management course curriculum. *Promotores* had a well-defined, team-endorsed role supported by policies and procedures that promoted patient safety and coordination of care. Furthermore, they were provided with adequate training in diabetes and self-management at the patient level with a competency/skill checklist, as well as opportunities for performance improvement and continuing education.

The self-management intervention, consisting of self-management education classes, support groups, individual follow-up, and monitoring by *promotores*, was incorporated into the system of patient care. First, patients were assessed by a provider and given educational materials. As a part of the treatment plan, the provider referred

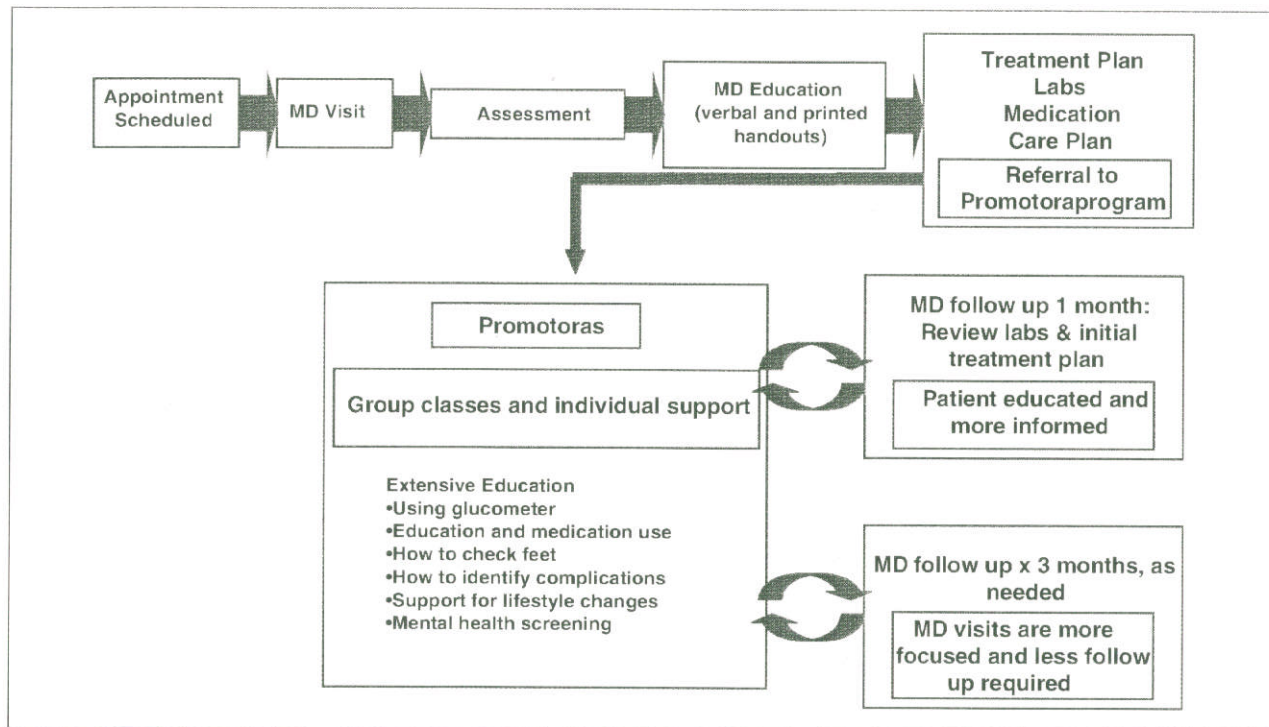


Figure 1. Gateway system of care: the integration of promotoras into the health care team.

patients to the self-management course (Figure 1). Once patients were enrolled in the course, promotoras routinely updated patient charts with current self-management information that could then be reviewed and supported by the provider during clinic visits. Monthly promotoras meetings were held with physicians to discuss and address patient self-management issues.

Promotora-Led Self-Management Course

The promotoras delivered 10 weekly lessons in 2.5-hour sessions. The goal of the self-management program was to help patients achieve and sustain glycosylated hemoglobin at 7.5% or below for an extended time. Initial sessions assessed knowledge, health beliefs, and risk for and presence of depression. Throughout the course, promotoras provided education and skills training related to glucose monitoring, medication management, physical activity, healthy eating, and coping. Participants also learned additional skills such as using a glucometer, how to check feet, and how to identify complications. Each meeting included collaborative goal setting, goal follow-up, goal revision, and problem solving to overcome barriers.

Seven key areas related to self-management were identified as targets for collaborative goal setting: physical activity, proper foot care, healthy meal planning, weight loss, medication management, regular blood sugar testing, and stress management. Participants also set goals for annual eye examinations and biannual dental examinations. In addition, participants were encouraged to set other personal goals. Participants were supported by a chosen buddy and weekly telephone calls by promotoras. Knowledge and health beliefs were reassessed at the end of the course. To ensure the program continually addressed patient needs, patient satisfaction and retention of knowledge were reviewed.

Depression Screening

In 2004, a depression management algorithm was developed for promotoras, clinical staff, and providers because of the high incidence of depression among patients. The first step in this process was to conduct Patient Health Questionnaire 9-item depression (PHQ9) screening during the second course session. Screening during the second session allowed time for promotoras to develop a rapport with patients and maximize accurate

responses. Depression scores were reviewed immediately. Score sheets that indicated mild to moderate depression were placed in the providers' boxes for subsequent review to determine the level of follow-up. Scores that indicated severe depression were given to the nurse in charge, and the medical chart was reviewed by the provider. Any participant reporting thoughts of suicide was walked to the nurses' station and seen by the provider the same day. After evaluation by the medical team, patients who required depression follow-up were referred to promotores. Promotores then monitored symptoms throughout class sessions and through telephone follow-up, continually updating the medical team.

Support Group

In response to course graduates requesting additional training sessions, Gateway developed a support group in October 2004 for those who had completed the 10-week course. This program began as a 5-week, promotor-led refresher course and evolved into a 10-session, biweekly support group. Additional training regarding diet, nutrition, physical activity, self-management, and complications was provided. As with the self-management course, the support group used group discussion to problem solve barriers and a buddy support system. Participants also received individual goal follow-up and weekly telephone calls.

Measures

Demographic characteristics and length of diagnosis were collected from self-reported data on the patient enrollment forms. Completion, attendance, and goal-setting data were collected from self-management course records. Course completion was defined as attendance of at least 7 of the 10 course sessions. Goal achievement measures were collected at 3 months, or course end, by the promotores. PHQ9 scores were collected during the second course session beginning in 2004. Scores of 5 to 9 were classified as mild depression, 10 to 14 as moderate depression, and 15 or higher as severe depression. Clinical measures (ie, glycosylated hemoglobin [HbA1c], high-density lipoprotein [HDL], low-density lipoprotein [LDL], and triglycerides) were collected at baseline, 3 months, and 12 months in the clinic. Baseline data on annual foot and eye examinations were collected from the enrollment form. Subsequent annual examination

data were collected by promotores during follow-up calls at 3, 6, and 12 months.

Analysis

Baseline measures of HbA1c, HDL cholesterol, LDL cholesterol, and triglycerides were compared to 12-month measures using a paired-sample *t* test. Comparisons of annual eye and foot examination results were made with the McNemar χ^2 statistic. Only participants with complete information at each time point were used in the analysis of each measure.

To identify differences between participants who maintained HbA1c at or below 7.5% and those with HbA1c above 7.5% after 12 months, characteristics were compared using the χ^2 statistic for categorical variables and the *t* statistic for continuous variables. All analyses were done using SPSS 13.0.

Results

Most participants were women older than 50 years with annual household incomes less than \$20 000 (Table 1). Most participants did not report insurance status. Of those who did, 76% were uninsured. More than one third of participants had less than a high school education. Most participants identified themselves as nonsmokers. Among participants with PHQ9 scores, most scored less than 5 at initial screening and did not require depression symptom follow-up. The depression symptoms of the 38% who scored greater than 5 were followed up by the promotores during the 10-week course.

The self-management course completion rate was greater than 80% (Table 2). Participants attended an average of 8 of the 10 sessions offered. Furthermore, almost 25% of participants attended support groups after the end of the self-management class. Increasing physical activity, managing medications, and proper foot care were the goals most frequently set by participants. At the end of the course, most participants reported achieving the goals they set during the course (Table 2), with one exception. Weight loss was the least frequently set goal, and less than one third of participants achieved it.

The distribution of HbA1c scores at baseline, at 3 months (end of the self-management class), and 12 months is shown in Figure 2. Participants of the self-management

Table 1

Demographic Characteristics of Participants

Total Sample (N = 301)	
Female, %	73.1
Age, mean (SD), y	60.3 (11.6)
Years diagnosed, mean (SD)	8.1 (7.3)
Education, %	
Less than high school	38.5
Missing	26.9
Income, %	
<\$20 000	61.9
Missing	33.2
Uninsured, %	38.9
Missing	49.2
Does not smoke, %	90.9
Missing	1.7
PHQ9 depression score, % ^a	
<5	61.9
5-9 (mild)	23.8
10-14 (moderate)	7.1
≥15 (severe)	7.1

a. Patient Health Questionnaire 9-item depression (PHQ9) screening was implemented in the second year of the program (n = 12).

course had significantly lower HbA1c levels at the end of class and maintained the difference over 12 months (Table 3). LDL values were significantly lower at both 3 and 12 months as compared to baseline. Furthermore, LDL values significantly decreased between 3 and 12 months. Triglyceride levels declined over time and were significantly lower at 12 months as compared to baseline. There was no change in HDL values. Participants were more likely to report having an annual foot examination within the 12 months after the self-management course as compared to baseline.

Twelve-month measures of HbA1c were available for 255 participants. Of those, approximately 63% had levels at or below 7.5% and thus achieved the program goal. Those individuals were significantly older (mean, 62 years) than those whose HbA1c levels were greater than 7.5% (mean, 57 years; $P < .05$). Ninety percent of those who achieved the program goal graduated from the class

Table 2

Gateway Self-Management Class Attendance and Goal-Setting Outcomes

Class Outcome (N = 301)		
Completed class, %	80.7	
Classes attended (SD)	8.1 (1.6)	
Attended support group, %	24.6	
Support groups (SD)	11.6 (12.3)	
Goal Setting	Set Goal, %	Achieved Goal at End of Class, %
Increase exercise	50.2	96.0
Manage medications	47.5	79.0
Proper foot care	44.2	77.4
Healthy meal planning	41.9	85.7
Stress management	32.2	97.9
Annual eye examination	29.9	67.8
Biannual dental examination	29.2	53.4
Blood sugar testing	19.3	94.8
Other personal goal	12.3	83.8
Weight loss	8.6	30.8

(ie, completed 7 of 10 sessions) compared to 76% of those who did not ($P < .01$). Participants who achieved the program goal were also more likely to participate in support groups ($P < .05$). Other demographic characteristics, average number of course and support group attendance, and goal achievement did not significantly differ between those who did and those who did not maintain HbA1c levels at or below 7.5% after 12 months.

Conclusions

Gateway Community Health Center created a successful, community-based, culturally-sensitive approach to diabetes self-management. The integration of the promotora-led self-management program into diabetes care at Gateway generated a system of referral, follow-up, feedback, and documentation that produced consistently high-quality clinical care. This system incorporated assessment and

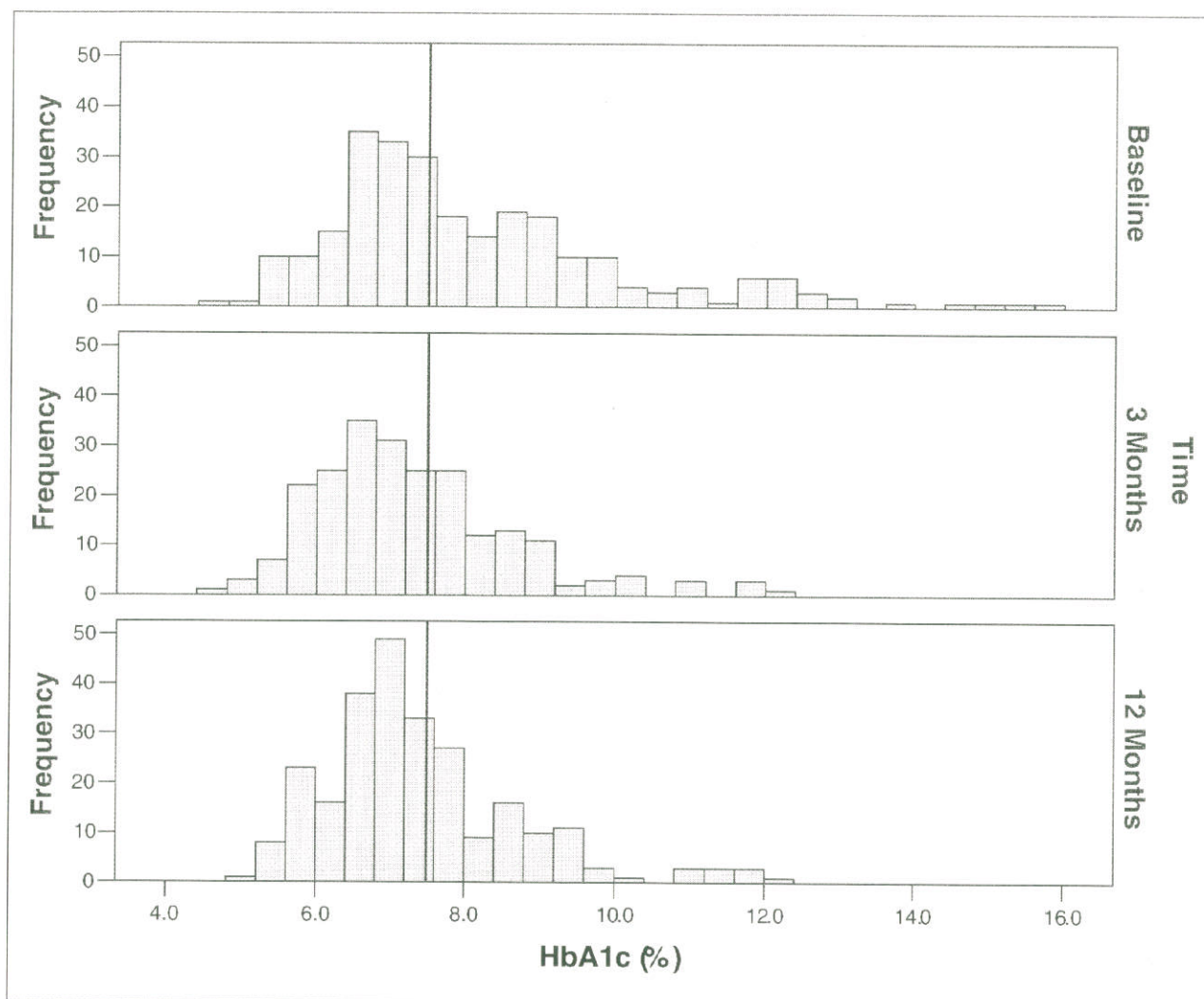


Figure 2. Distribution of HbA1C percentage measures over 12 months. The vertical line on the x-axis designates the target measure of 7.5%. Baseline, $n = 258$; 3 months, $n = 226$; 6 months, $n = 230$; 12 months, $n = 255$.

management of chronic illness-related depression. Furthermore, regular communication among promotores, providers, and clinical staff allowed for a collaborative evaluation of the program and the opportunity to continually improve on services to better address patient needs.

The structure of the self-management program encouraged patient-centered care. Through collaborative goal setting, follow-up, and problem solving, patients identified personal priorities for improved self-management and received the necessary training and support to achieve goals. Providers were routinely updated on patient self-management progress and needs, allowing for

reinforcement during clinical visits and the provision of additional medical services when appropriate.

Improvements in the system of care translated to improvements in clinical outcomes for participants of the self-management course. These improvements were sustained 6 months after the end of the course. Furthermore, the self-management education course had a high retention rate, unlike previously reported programs.³ Approximately one fourth of participants also attended support groups. The goal-setting portion of the course also yielded encouraging results. Most participants attained the goals set during the program. This suggests

Table 3

Comparison of 3-Month and 12-Month Outcome Measures to Baseline

Outcome Measure	Baseline	3 Mo	P Value	12 Mo	P Value
HbA1c, mean % (n = 195) ^a	8.0	7.2	<.001	7.3	<.001
Low-density lipoprotein, mg/dL (n = 136) ^{a,b}	112.7	106.1	<.01	93.4	<.001
High-density lipoprotein, mg/dL (n = 148) ^a	47.7	47.9	.77	47.7	.95
Triglycerides, mg/dL (n = 148) ^a	205.3	186.1	.08	183.1	<.05
Foot examinations, % (n = 286) ^c	24.1	—	—	56.3	<.001
Eye examinations, % (n = 286) ^c	22.7	—	—	20.3	.29

a. Analyzed with paired *t* test.
b. Significant difference between 3-month and 12-month measure (*P* < .001).
c. Analyzed with McNemar χ^2 test.

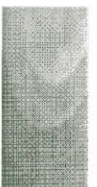
that the continual focus on goal follow-up and collaborative problem solving had a positive impact. Because weight loss was a low priority and less readily achieved, it may be more successful to focus goal-setting efforts on healthy eating and increasing physical activity as opposed to decreasing weight.

When comparing those with HbA1c levels at or less than 7.5% after 1 year to those whose HbA1c levels were greater than 7.5%, those with lower levels were more likely to be older, complete the program, and attend support groups. Older individuals, in particular those older than 60 years, may be less likely to be working full-time or have less familial obligations, such as care of young children, and have more time to devote to self-management. This may, in turn, allow for more time to allot to the self-management program. These findings suggest that attending at least 70% of the sessions positively affects HbA1c levels, and this effect is likely to be sustained over time. Furthermore, the increased completion rate and support group participation indicate increased contact with promotores and access to program resources. The increased contact may have been instrumental in providing the support necessary for patients to adequately self-manage their diabetes.

Depression, which is less likely to be diagnosed in Hispanics than non-Hispanic whites,¹⁴ negatively affects self-management.^{15,16} Participants with higher depression scores received increased attention to symptoms by the promotores and medical staff. As a result, barriers to self-management associated with depression may have been sufficiently addressed to benefit patient outcomes.

There are limitations to this assessment that should be noted. There were incomplete clinical data for all participants. Incomplete demographic data, such as insurance status, may have been due to a high level of immigration between Mexico and the United States in this border town. The self-reported smoking rate of this population is lower than the 2003 state average of 21.2 per 100 diabetic patients.¹⁷ Smoking may have been underreported at the time of enrollment. It may be beneficial to ask participants about smoking behavior later in the program after rapport has been established and to incorporate cessation support into the self-management intervention if needed. Goal setting was described categorically, and achievement information was reported only for course end. This prevents analysis of the process of goal achievement and how behaviors are changed and sustained over time. Finally, depression screening was implemented later in the program. Small sample sizes prevent additional investigation into how the severity of depressive symptoms affects outcomes.

The use of an ecological framework to create a diabetes self-management program that provides individualized assessment, collaborative goal setting, skills enhancement, follow-up and support, access to community resources, and continuity of quality clinical care can result in high-quality diabetes care. Furthermore, the integration of self-management support into a primary care system and the use of promotores for program delivery can provide more comprehensive and culturally appropriate services, leading to better patient outcomes. A team approach among providers, clinical staff, and



promotores is essential for successful program outcomes and continual improvements to patient care.

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