Connecticut Health FOUNDATION

In-Depth

Executive Summary of a CT Health Evaluation

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EVALUATION OF THE CONNECTICUT HEALTH FOUNDATION DIABETES GRANT INITIATIVE

Final Evaluation Report

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OVERVIEW

The Connecticut Health Foundation (CT Health) Community Health Data Scan identified racial and ethnic health disparities in the metabolic syndrome (disorders that increase risk of diabetes), resulting in increased cases of type II diabetes. Concerned about this increase, CT health funded a 30-month grant initiative (January 2007-June 2009) to provide resources to federally qualified health centers to make systems changes that would improve diabetes prevention and management for patients of color.

Connecticut federally qualified health centers (FQHC) were eligible to apply because they serve a large proportion of minority patients (Hispanic and Black) who reflect a disproportionate number of diabetes cases. This aligns with CT Health's 10-year strategic plan, which includes reducing disparities by improving quality and changing systems in minority-serving clinical entities.

Participating community health centers submitted proposals to introduce discrete systems changes in their practices, based on a chronic care model (CCM), described in Table 1. The model, developed for primary care settings to provide optimal care to patients with chronic disease, includes six elements:

- Community resources and policies
- Health care organization
- Self-management support
- Delivery system design
- Decision support
- Clinical information systems

The centers were given considerable latitude in designing and implementing systems changes tailored to their particular needs, with an emphasis on:

- Improving the quality of diabetes care
- Expanding and improving access to diabetes preventive and treatment services
- Contributing to the understanding of diabetes disparities and effective interventions through research, best practices and evaluation
- Increasing and improving collection and analysis of diabetes data on minority populations

Four Connecticut federally qualified health centers were chosen to participate, since they serve a large proportion of minority patients who reflect a disproportionate number of diabetes cases.

TABLE 1. **THE CHRONIC CARE MODEL**

ELEMENT	ACRONYM	DESCRIPTION
Community Resources and Policies	CR	• Linkages with other community organizations (e.g. hospitals, senior centers, etc.) to expand available resources
Health Care Organization	HCO	• Provider organization's structure and relationships with payers and other providers • For chronic care to be a priority, it must be economically sustainable
Self-Management Support	SMS	• Resources and activities designed to help patients manage their illnesses (e.g. monitoring tools, education, etc.)
Delivery System Design	DSD	• Changes in the manner in which care is delivered • Chronic care should be separated from acute care • Whenever possible, non-physician personnel should be trained to provide chronic care support (e.g. arranging routine tests and providing self-management support)
Decision Support	DS	• Evidence-based guidelines should be integrated into clinical practice • Expert advice from specialists should be easily accessible
Clinical Information Systems	CIS	• Computer information systems should support the goals of systems change by providing reminders, performance feedback, and registries used to identify patients at risk

A Two-tiered Funding Approach

Four FQHCs received grants totaling $1.3 million over the 30-month period:

- Community Health Center (Meriden, New Britain) and Fair Haven Community Health Center (New Haven) had existing diabetes programs supported by resources from other foundations and proposed innovative enhancements that scored well with reviewers.

- StayWell Health Care (Waterbury) and Community Health Services (Hartford) were frank about the challenges and resource constraints they faced in offering comprehensive diabetes programs and the difficulty in managing their patient diabetes registries/data.

Concerned about perpetuating a model of "those who have get more," reviewers recommended a two-tiered funding approach to take established programs to the next level and strengthen struggling programs serving high-need minority populations.

THE PROGRAMS

Community Health Center

Purpose: Test disease management by telephone from the commercial health sector in a randomized, controlled trial in two of the 12 primary care centers.

Results: Clinical outcomes did not demonstrate the program's effectiveness in improving glycemic control or blood lipids. Still, results of a focus group and patient satisfaction survey suggest the program's structure and content were appropriate for this study population and well-received by patients.

The project team concluded that telephonic disease management works only for some patients. The project also successfully demonstrated implementation of a rigorous experimental design in an FQHC setting, which is not often used.

The center met all 10 of its process objectives. These included establishing a multidisciplinary project team; developing a patient recruitment protocol; developing a nurse training curriculum; and hiring a research assistant and telephonic disease management nurses. Of the 313 patients recruited, 296 were enrolled and 227 completed the study.

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Community Health Services

Purpose: Address inconsistent care and negative health outcomes among medically transient Black and Hispanic patients in three ways.

- First: Increasing access to care and improving patient retention for a medically transient population
- Second: Expanding community outreach
- Third: Offering culturally competent education and prevention services

Results: From baseline to six months, patients experienced a significant decrease in diastolic blood pressure. But, potentially meaningful decreases that were not significant were also observed for total cholesterol, systolic pressure, LDL (low-density lipoprotein, or "bad" cholesterol) and triglycerides (form of fat made in the body). A small decrease in HbA1c (a test that measures the amount of glycosylated hemoglobin in your blood and provides a good estimate of how well diabetes is managed over time) also was not statistically significant. HDL (high-density lipoprotein, or "good" cholesterol) also decreased slightly but not significantly.

From baseline to 12 months, significant improvements were observed for diabetes empowerment and number of days individuals followed a diet. There also were near-significant improvements for medication use and healthy days.

Results suggest this program is effective for improving diastolic blood pressure, diet and diabetes empowerment, and may have beneficial effects on systolic blood pressure, blood lipids, medication use, anxiety and overall wellness.

The center met or exceeded most of its 10 process objectives in year one and eight established for year two.

In year one, it exceeded its goals in additional patients enrolled in the diabetes access project (193 vs. 50); education workshops (32 vs. 15-20); and percentage of participants receiving diabetes education (72 percent vs. 65 percent).

In year two, it exceeded its objectives in the percentage of patients who identified primary care providers (100 percent vs. 80 percent); additional patients enrolled in DAP (126 vs. 50); and diabetes education workshops (46 vs. 15-20).

Fair Haven Community Health Center

Purpose: Improve the ability to identify and screen patients at risk of diabetes and develop effective diabetes prevention activities. Using the agency's diabetes registry for prevention was innovative.

Results: The project team reported that 75 percent of their prediabetic participants lost enough weight to reduce their risk of developing diabetes.

Fair Haven met or exceeded all seven of its process objectives. This included inviting over 228 women (initial goal was 100) with an average of two family members to participate in ongoing diabetes prevention; screening 764 non-Hispanic patients (original goal was 655); and screening 254 Hispanic women (original goal was to arrange screening and treatment for adult Hispanic women with diabetes/ pre-diabetes not participating in family intervention). Among the results: 40 percent of the women screened had prediabetes. There was a 570 percent increase in identification and outreach to high-risk patients. Participants lost an average of seven pounds, reducing the risk of diabetes by 33 percent.

StayWell Health Care

Purpose: Improve the overall quality of care for the center's diabetic patients and use expanded community outreach to increase awareness of diabetes and use of the agency's services among African-Americans.

Results: No significant changes occurred from baseline in blood pressure, total cholesterol, weight, HbA1C, or the diabetes empowerment of patients. However, non-significant improvements in systolic blood pressure and total cholesterol occurred.

Of the 13 process objectives established, StayWell met three. It held six community events and planned 20 screenings, exceeding its original goals of four screening events and four education classes. It also developed adequate clinical information systems staffing and made patient care reports available to providers.

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TABLE 2. **PROGRAM RESULTS AND FUTURE PLANS**

CENTER	PERCENT OF PROCESS OBJECTIVES MET	CLINICAL OUTCOMES	SUSTAINABILITY
Community Health Center, Inc.	**100 percent**	**Statistically significant:** Less improvement in HbA1c than control group **Trends toward significance:** HDL cholesterol, weight, glycemic control, smoking	CHC, Inc. has committed to picking up the cost to sustain telephonic disease management as a quality of care initiative. The program will be expanded to patients from other CHC, Inc. sites and to chronic conditions beyond diabetes.
StayWell Health Care, Inc.	**23 percent**	**Statistically significant:** None **Trends toward significance:** Systolic blood pressure	Center expressed intent to sustain nutrition counseling and group work only
Fair Haven Community Health Center, Inc.	**100 percent**	Data not usable; self-report suggests beneficial change in weight	Obtained a Donaghue Foundation grant to continue and more rigorously evaluate program in partnership with Yale researchers through 2012.
Community Health Services, Inc.	**44 percent**	**Statistically significant:** Diastolic blood pressure, diet, diabetes empowerment **Trends toward significance:** Total cholesterol, systolic blood pressure, LDL cholesterol, medication use, anxiety, healthy days	All initiatives to be sustained or expanded. Center is seeking American Diabetes Association recognition status, which would enable patient education programs to be sustained through reimbursement

Weaknesses Identified

Some weaknesses were identified that may be improved upon in future initiatives.

Not all the sites appeared to have a strong grasp of the CCM, since many attributed certain activities to components of the CCM, to which they did not apply.

This initiative was designed to complement the Community Health Center Association of Connecticut's Health Disparities Collaborative in which three of the four centers already were participating. The collaborative model emphasized the majority of the aspects associated with the CCM, so it was assumed the sites had greater pre-existing understanding than what was actually observed.

The community-oriented primary care model combined the principles of primary care, epidemiology and public health into an intervention addressing a population's specific health care needs through partnership between the health profession and community. Some of the six components of the CCM often were not addressed in the initiatives. Only Fair Haven used all six elements.

Participating centers were expected to understand the model sufficiently to use it optimally. Although self-management support was frequently provided, few of the centers made many, if any, changes to health care organization or community resources.

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In many cases, activities carried out did not result in significant system-wide change (e.g. diabetes education classes, walking clubs, etc.) and may have limited the impact of interventions.

Additionally, the programs were not always implemented as planned. A number of sites' process objectives were not specific and not measurable, making evaluation difficult and perhaps adversely influencing execution of activities required to achieve those objectives.

The staff at each community health center may benefit from training in the CCM before planning systems change interventions and developing clearer, more specific objectives for process and outcome measures.

CONCLUSIONS

The four participating health centers implemented diabetes-focused interventions that relied on the CCM. The extent to which CCM elements were incorporated into the programs varied from center to center.

Many process measures were successfully instituted, which expanded the centers' diabetes programs. Only one intervention yielded statistically significant changes in clinical outcomes, and one surprisingly saw a negative effect, compared to a control condition. Many positive trends, however, were noted.

Before this initiative began, the following criteria for determining its success were established:

- **Failure** – Unacceptable process measures demonstrated by the inability to implement program activities
- **Marginal success** – Positive process measures with no definitive outcome measures (i.e. no clinical or statistically meaningful change)
- **Moderate success** – Definitive outcome change (clinically and statistically meaningful) achieved in one of the four programs
- **High** – Clinical and statistically significant changes in outcome measures achieved in two of the programs

The potential impact of the program was defined as:

- **Low** – Positive process measures but no improvement in primary outcome measures
- **Moderate** – Definitive outcome change in two of the four programs without demonstration of cost effectiveness OR definitive outcome change in one of the four programs with demonstration of cost-effectiveness
- **High** – Definitive improvement in primary outcome measures of interest with demonstration of cost-effectiveness

Based on these definitions, the initiative's success can be considered marginal or moderate, with low impact.

Although there were some small improvements in primary outcome measures, "definitive change" did not occur in any program.

Together, these results suggest that whether the CCM can be used effectively by community health centers to improve clinical measures predictive of diabetes and diabetes-related complications depends greatly on the focus, intensity and implementation of the interventions.

Pivotal for ensuring the effectiveness of the CCM as a basis for chronic disease prevention programs are:

- Components of the model used
- Specific activities chosen to bring about change
- The extent to which those activities are carried out and reach the target population

Design of any intervention must include specific and comprehensive evaluation of process and outcome measures sufficiently responsive to change.

Evaluations like this one reflect CT Health's commitment to collecting and disseminating knowledge, and ensuring that the foundation continues to pursue the most effective course in achieving its mission of improving the health of Connecticut's residents.

For a copy of the complete report, email: info@cthealth.org.