Community Health Coalition of Caldwell County
Creating a Healthier Community

Seton Edgar B. Davis Hospital
A member of the Seton Family of Hospitals

A Home-Based Diabetes Education Program and Its Approach to Disease Management

Introduction

Texas has the highest rate of uninsured persons in the nation. In Caldwell County, the rate is even higher than the state average. More than 9, 600 Caldwell County residents (or 27%) are not insured, compared to the state average of 24.1% and the national average of 15.8%.

Additionally, diabetes is the most prevalent chronic disease in Caldwell County. In 2007, 8.8% of adults in Caldwell County were diagnosed with diabetes compared to 9.7% of adults in the state.

Purpose

The home-based Diabetes Education Program of the Community Health Coalition of Caldwell County partners with local healthcare providers, social services, community programs, agencies, and leaders to address the challenges associated with improving access to care for the uninsured and underinsured adult population of Caldwell County who have been diagnosed with, or are at risk for developing, Type 1 and Type 2 diabetes.

The Diabetes Education Program aims to achieve the following goals:

- Provide comprehensive diabetes education in order to increase the quality of life for diabetic residents of Caldwell County
- Reduce the financial burden of uncompensated care resulting from preventable utilization of Seton Edgar B. Davis Hospital
- Reduce healthcare disparities and provide a comprehensive approach to chronic disease management

Methods

Program Setting

The home-based Diabetes Education Program is located 40 miles south of downtown Austin in Lockhart, Texas, as part of the Community Health Coalition of Caldwell County. The two major cities served by this program include Lockhart and Luling.

Program Description

The program began seeing its first patients in August of 2009 and is funded by a HRSA Network Development Grant through the Office of Rural Health Policy allowing for diabetes education to be provided at no cost to the patient. The program deploys a bundled approach that focuses on behavioral, physiological, and psychosocial determinants that are known to increase morbidity and mortality in diagnosed diabetics. This bundle includes Diabetes Self-Management Education provided by a licensed dietitian that addresses knowledge deficits and self-care techniques based on the best-practice standards for diabetes care, as well as coordination with a Patient Prescription Assistance Program.

The program consists of an initial one-on-one session with the dietitian in the patient's home or Coalition office, with additional follow-up sessions scheduled at the discretion of the dietitian for up to a year. The sessions are designed to meet the needs of the individual patients and vary in content based on the needs and expressed interest of each patient. Patients receive educational handouts and are able to utilize other tools and resources such as food models, flashcards, food product packages, and glucometers. During each session, the dietitian and patient work together to identify and set pertinent and specific behavioral goals based on patient needs and interests, with evaluation and modification of these goals occurring at follow-up. Following each session, the dietitian develops a comprehensive assessment note to communicate with the patient's primary care provider/referral source and other relevant providers.

Identifying Patients

Patients are identified for enrollment in the program through one of three pathways:

1. Data retrieval of Emergency Department and inpatient hospitalization encounters for diabetic residents through the ICare® database, a regional central data repository of the Integrated Care Collaboration.
2. Direct referrals from Primary Care Providers, Federally Qualified Health Centers (FQHC), as well as community social programs/agencies.
3. Indirect referrals through community members and residents.

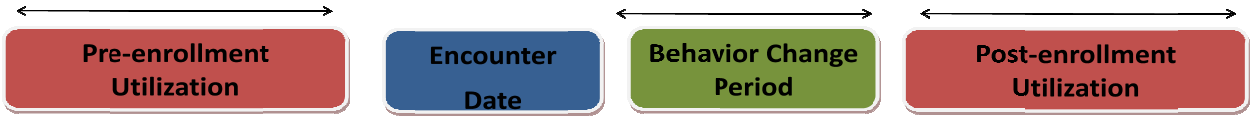
Statistical Analysis

The program evaluated 53 patients enrolled between the months of August and December 2009, to measure the reduction of utilization at Seton Edgar B. Davis Hospital.

Reported reduction in utilization viewed as net benefit is predicated on two assumptions: 1. that without an intervention, individuals with a defined pattern of behavior would continue that pattern and 2. when a patient is provided with self-management education there will be a reduction in the utilization of healthcare services.

Hospital and clinic encounters were counted six months prior to their first diabetes education session, referred to as encounter date. Patients were given 90 days after their first encounter to

make the necessary behavioral changes to improve their health outcomes. Encounters within this 90-day period were not considered in the evaluation to accommodate behavior change and to minimize regression to the mean. Utilization was evaluated six months after the 90-day behavior change period. Results were calculated based on actual utilization and average cost per payer for each encounter type, and then annualized for this population.



n=53

Payer	Percent
Commercial	8%
Medicaid	19%
Medicare	38%
Public	4%
Uninsured	32%

Ethnicity	Percent
Native American	2%
Caucasian	42%
Hispanic	57%

Gender	Percent
Male	38%
Female	62%

Residence	Percent
Lockhart	45%
Luling	30%
Other	25%

Outcomes

Clinical Outcomes

Measure	Average Change
LDL	20 mg/dl
HgbA1C	2.3%
Glucose	35 mg/dl
Weight	12 lbs
Pre/post interval	133 dys

On average, the program has noted an average reduction in HbA1C of 2.3%. In all measures there are significantly improved clinical outcomes after educational intervention.

Utilization Outcomes

In addition to improved clinical outcomes, the program demonstrated a 33% decrease in emergency room visits related to diabetes, a corresponding 75% in inpatient visits, and an overall 61% decrease in all types of care. In addition to enrollment in the diabetes education and care coordination program, 40% of these patients were also enrolled in the Pharmacy Assistance Program (PPAP) and received public funding screening. In FY 2010, the PPAP program served 320 patients overall and provided prescription medication savings of over $554,000 in average wholesale value.

Return on Investment and Local Economic Impact

By providing services for the treatment and prevention of diabetes, Diabetes Education Program will save the health care system a significant amount of money. In today's dollars, the decrease in medical expenditures resulting from visit avoidance is calculated to be $428,028. Netted against program expnse,

the net benefit ratio is $2.85. For every dollar spent, $2.85 is saved through cost avoidance and care coordination.

The increase in illness related to diabetes also decreases the area's economic productivity. The projected increases in productivity due to a healthier workforce in Caldwell County is projected to be $229,554.95 over a five year period. That includes fewer work days lost to illnesses and an increase in workforce participation. The resulting return on investment is $1.67 for every dollar spent -- money that contributes directly to the bottom line of local businesses and the people they employ.

When medical care cost savings are combined with the increases in economic productivity that are derived from the treatment and prevention of diabetes, Diabetes Education Program will yield a 5-year total return on investment of $4.52 for every dollar spent -- a real, measurable benefit to the residents and businesses in our community.

Summary of Diabetes Education Program's Community Benefit

Annual Program Expense	*$150,000.00*
Single-year Decrease in Medical Spending	$428,028
Medical Return on Investment	**$2.85 per dollar spent**
5-year Decrease in Social Costs	$229,554
Economic Productivity Return on Investment	**$1.67 per dollar spent**
TOTAL Net Benefit Ratio	**$4.52 per dollar spent**