

Impact of a Diabetes Self-Management Education Program on Participating Missouri Medicare Beneficiaries

Project Overview

Missouri has a high rate of diabetes, with higher rates of diabetes in urban areas as compared to the rest of the state. In an effort to address these needs, the TMF Quality Innovation Network Quality Improvement Organization (QIN-QIO), under contract with the Centers for Medicare & Medicaid Services, worked with its subcontractor, Primaris, in Missouri to examine the impact of a community-based, peer-educator diabetes self-management education (DSME) model, the Diabetes Education Empowerment Program (DEEP). The TMF QIN-QIO examined the knowledge, attitude and behavior toward diabetes management as well as the impact of DSME on health care utilization among participating Medicare Fee-for-Service (FFS) beneficiaries in the urban communities of Missouri. Results include overall improvement in knowledge, behavior and attitude from survey scores after completion of DEEP classes, decreased inpatient utilization in the St. Louis Center community, and decreased emergency department (ED) visits statewide.

Intervention Methodology

DEEP is a self-management program developed at the University of Illinois at Chicago that trains community health workers and advocates in a curriculum designed to engage community residents in self-management practices for prevention and control of diabetes. The pre- and post-survey components of DEEP provided an interim measure that evaluates the change in patient self-activation, therefore illustrating the impact of the coaching on the beneficiaries' attitudes, behaviors and knowledge.

For this project, the examination of intervention impact was limited to participants in the DEEP classes who completed the pre- and post-Patient Activation Survey (PAS), both prior to initiating the classes and at the conclusion of the six-week DEEP course. The outcome measures related to health care utilization were also limited to those individuals who completed the DEEP classes.

Given the population profile of Missouri, the locations of the classes were chosen to address two of the target populations: the rural and African-American cohorts. These two groups comprised the greatest prevalence of high risk and illustrate the concentration of classes in urban areas to educate African-Americans and less populated areas for the rural cohort. With these parameters, the classes were offered were in Kansas City, St. Louis and greater areas of Missouri.

Outcomes

Available Medicare identifiers of DEEP graduates were used to match with FFS Medicare claims in order to profile the health care utilization patterns of participants in the program. This matching resulted in a total of 71 graduates (N = 71) of which to analyze related health care utilization. ED and inpatient hospitalizations 180 days prior to DEEP class initiation and 180 days after graduation from the program were analyzed for such changes in utilization. Pre- and post-DSME participation survey results and Medicare claims data (ED and inpatient stays) were summarized as counts and percentages with relative improvement rate calculated for each measure. Patterns were examined between the St. Louis, Kansas City and greater areas of Missouri communities for the time period between July 2014 and July 2017.

Figure 1 displays the pre- and post-DSME PAS results for all three communities, Kansas City (KC), St. Louis and greater areas of Missouri (Missouri), from July 2016 through June 2017. The survey results are expressed as a relative improvement rate for each of the survey questions and averaged across the three categories of questions: knowledge, behavior and attitude. All communities across all three categories showed improvement, with St. Louis illustrating the largest amount of improvement.

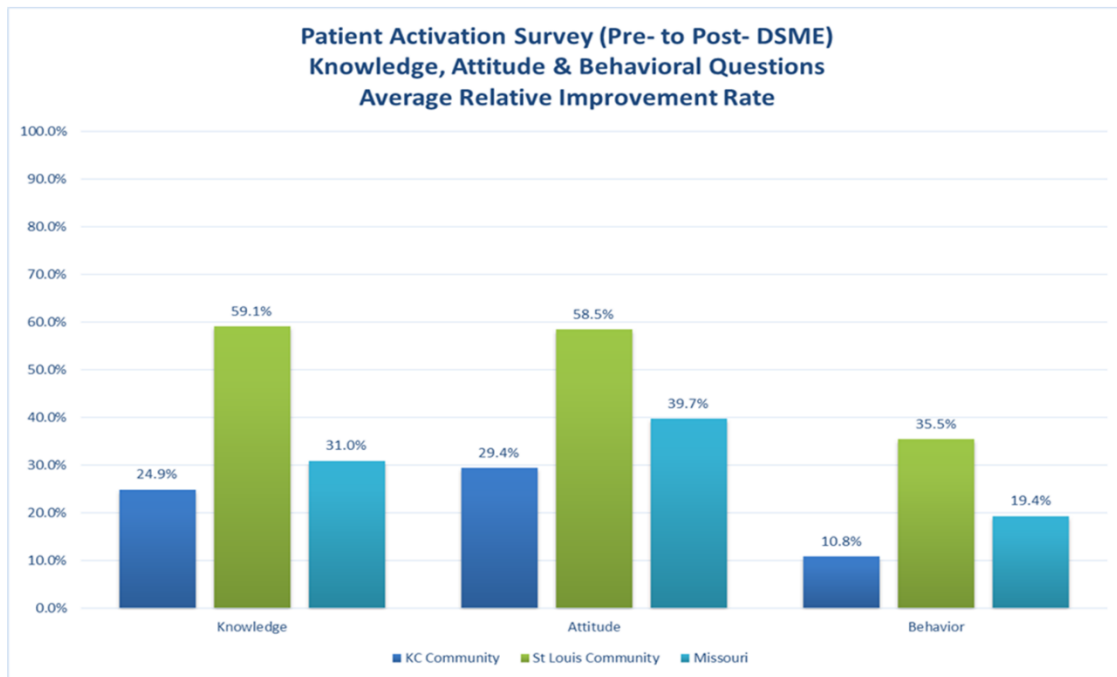


Figure 1. Pre- and Post-DSME PAS Results: Kansas City (KC), St. Louis and greater areas of Missouri (Missouri) July 2016 through June 2017

In terms of pre- and post-health care utilization rates (ED visits and inpatient hospitalizations) for DEEP graduates in Kansas City, St. Louis, and the greater areas of Missouri (“all other communities”), Table 1 shows utilization for 180 days pre- and post-DSME course completion for all three communities. Results are expressed as a relative improvement rate, with some rates not calculated due to low numbers. For the St. Louis community, a 100 percent relative improvement was seen for inpatient hospitalizations with both Kansas City and the greater areas of Missouri (“all other communities”) showing a negative change (increase) in inpatient hospitalizations. For ED visits, a 50 percent relative improvement was seen for the greater areas of Missouri (“all other communities”) with missing rates for both the Kansas City and St. Louis communities (due to low participant counts).

Table 1. Medicare FFS Beneficiary DSME Graduates with Utilization Claims Pre- and-Post 180 Days DSME Program

	Before class		After class		Absolute change		Relative change	
	Inpatient	ED	Inpatient	ED	Inpatient	ED	Inpatient	ED
Kansas City CT Community	11	*	13	*	-2	*	-18%	*
St Louis Center	18	*	0	*	18	*	100%	*
All other communities	94	36	145	18	-51	18	-54%	50%
Missouri	123	47	158	23	-35	24	-28%	51%

* 42 CFR 480.120 requires TMF Health Quality Institute to disclose aggregate statistical information that does not implicitly or explicitly identify individual patients, practitioners or reviewers. Counts smaller than 11 have been suppressed to meet this requirement.

Discussion

The key findings of this study include a decrease in inpatient utilization within 180 days post-intervention (relative improvement rate of 100 percent) in the St. Louis cohort for those patients completing DEEP (with adequate beneficiary identifiers needed to match to Medicare claims). In the greater areas of Missouri, participants in DEEP showed a decrease in ED visits 180 days after successful completion of the class. All beneficiaries participating in DEEP exhibited improvement in knowledge, attitude and behaviors regarding diabetes as evidenced by the pre- and post-PAS results. The goal of better self-management for individuals with diabetes can be achieved by a program that addresses patient knowledge, attitudes and behavior in a peer-to-peer setting.

Given the context of high rates of readmissions, higher rates of diabetes and a smaller cohort of patients in the St. Louis Center community, DSME was expected to have a positive impact on the health care utilization among patients with diabetes. The DSME impact on acute utilization in other Missouri communities warrants a larger participant sample size in order to determine definite trends. In addition, an analysis of co-founding factors should be considered, such as better attendance of classes in some communities versus others due to transportation resources, density of participants and recruited stakeholder influence in the given community.

DEEP provided an opportunity for the evaluation of a peer-based coaching model to be applied to the measurement of self-management components of chronic disease. The concept that disease management can be impacted in a non-clinical setting speaks to the broader aims of population health and may have implications to other chronic diseases.

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