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MANAGEMENT AND SUPPORT OF UNINSURED PATIENTS WITH DIABETES
TYPE II WITHIN A NURSE MANAGED CLINIC

Doctor of Nursing Practice Project Presented to the
Faculty of Graduate Studies
University of Missouri - St. Louis

In Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

by

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AUGUST 2019

Abstract

The purpose of the project was to improve the quality of care for the uninsured, Type II Diabetics residing in a Midwestern urban underserved community. Community Health in Partnership Services (CHIPS) was a nurse-managed clinic, located in that area, that sought to lessen the burden of being uninsured. An annual fee of \$35.00 allowed an uninsured community member access to a variety of different health care providers including specialists. In order to utilize this health care team efficiently, it was necessary to implement nurse-led care coordination for patients diagnosed with Type II Diabetes. This quality improvement project followed the Plan Do Study Act (PDSA) cycle to implement a quasi-experimental uncontrolled before and after design involving a retrospective review. A convenience sample of 24 patients was obtained from CHIPS clientele. After 60 days of implementation, following a PDSA cycle, the data were analyzed using Minitab Statistical Analysis program. Once the results were analyzed and the project concluded, the null hypothesis stated that the mean difference in HbA1C before and after implementation of care coordination would not be impacted by the implementation of care coordination and seeing a primary care provider in 2019. The p-value presented at <0.0001 when comparing the two HbA1Cs in a one year period. This is less than the significance level of 0.05, thus the decision was to reject the null hypothesis and conclude that there was a significant relationship in the patients lower second HbA1C after the implementation of nurse-led care coordination.

Introduction

Many United States citizens remain uninsured. After the implementation of the Affordable Care Act in 2012, 168,000 Missourians gained health care coverage (Kaiser Family Foundation, 2017). While many Missourians obtained health insurance through the Affordable Care Act marketplace many continue to endure financial barriers. Without the expansion of Medicaid in Missouri, non-disabled adults living in Missouri, who have no dependent children, did not qualify for Medicaid (Norris, 2018).

A survey done by Kaiser Permanente in 2016 demonstrated that 45% of uninsured nonelderly adults were uninsured due to costs being too high (Kaiser Family Foundation, 2017). According to data collected from the U.S. Census Bureau in 2017, 536,500 Missourians were without any health insurance coverage (Kaiser Family Foundation, 2017). Without health insurance, these Missourians encountered serious health consequences (Kaiser Family Foundation, 2017). The Missouri Department of Health and Senior Services concluded that 30,995 Missourians were uninsured and diagnosed with Type II Diabetes, plus an estimated 200,000 that were possibly undiagnosed diabetics (2019).

In Missouri, a single, uninsured individual, who is trying to manage their Type II Diabetes, struggled to break down those barriers to care that felt like brick walls. Various social determinants of health impeded or delayed access to quality care. The World Health Organization defined social determinants of health as “a set of social, commercial, cultural, economic, environmental, and political determinants that drive patterns of health inequalities” (Pega et al., 2017). Race is one example of the countless factors that affected health outcomes.

While the bulk of Missouri is rural, the St. Louis community experienced these same patterns of inequalities. These disparities contributed to the uninsured, African American, population presenting with significantly higher occurrences of Type II Diabetes in St. Louis (Missouri Department of Health and Senior Services, 2019). In St. Louis City, 21.28% of adults aged 18-64 had no health care coverage (Missouri Department of Health and Senior Services, 2019).

In St. Louis City, 31% of African Americans lived below the poverty line (Washington University in St. Louis and St. Louis University, 2015). The death rate for African Americans caused by diabetes, living in St. Louis City, is 34.4 deaths per 100,000 people compared to 12 deaths per 100,000 for Caucasians (St. Louis Partnership for a Healthy Community, 2017).

One subset of St. Louis, Jeff-Vander-Lou (zip code 63106) had a population that is 95% African American (St. Louis Partnership for a Healthy Community, 2017). Within this community 55.8% were living below the poverty level, the median household income was \$14,087, almost half of the households did not have access to a vehicle, and 10.3% over the age of 25 had a bachelor's degree or higher (Think Health St. Louis, 2016). Those that resided in the area were three times more likely to visit the emergency room because of uncontrolled diabetes and in 2017 this zip code saw the highest emergency room usage compared to St. Louis City/County (St. Louis Partnership for a Healthy Community, 2017).

Purpose of the Project

The injustices in our community were irrefutable and nursing leaders were expected to support the development of strategies to strengthen and implement health-equity

focused initiatives. Disparities within the current healthcare system generated fragmented care for the most vulnerable. Lack of adequate transportation, inaccessible insurance, expensive medications, and lack of support cause barriers to accessing quality healthcare. This fragmentation lead to delays in care and increased the risk of complications from chronic conditions (Agency for Healthcare Research and Quality [AHRQ], 2014). Community Health In Partnership Services (CHIPS) was a nurse-managed clinic located in the Jeff-Vander-Lou region, that sought to lessen the burden of being uninsured in St. Louis City.

An annual fee of \$35.00 allows uninsured community members access to a variety of different health care providers including specialists. As of October 2018, CHIPS clinic served 920 uninsured clients year to date (CHIPS Health and Wellness Center, 2018). Approximately 21% of those clients were diagnosed with Type II Diabetes (CHIPS Health and Wellness Center, 2018). This clinic provided access to health care for these vulnerable patients where there was none.

Access to healthcare improved health outcomes as can providing quality evidence-based care for complex conditions that may often occur from being uninsured (Schmittiel et al., 2017). Within this clinic, volunteer providers documented in paper charts. Paper charts created delays in care and these delays impacted those patients diagnosed with Type II Diabetes who experienced untimely follow up or overdue medication refills due to fragmented care.

The Affordable Care Act enacted strategies to prevent fragmentation within the healthcare system. A key strategy was focusing on a “value-based payment” system that encourages population health models such as Accountable Care Organizations (Obama,

2016). To ensure quality care these organizations were reimbursed based upon the ability to meet performance benchmarks set by the Centers for Medicaid and Medicare (Center for Medicare and Medicaid Services [CMS], 2018).

Evidence based benchmarks held these organizations accountable for the quality of care they administered (Center for Medicare and Medicaid Services [CMS], 2018). Care coordination was one of tactics intended to “organize patient care and share information with all members of the team concerned with a patient’s care to achieve safer and more effective care” (Agency for Healthcare Research and Quality [AHRQ], 2014, para. 1). The implementation of these strategies into the healthcare system continued to reduce healthcare spending, slow the rise in employee paid premiums, and reduced hospital readmissions for patients with Medicare (Obama, 2016).

CHIPS clinic utilized a team based approach, similar to that of an Accountable Care Organization, in order to provide health care to those who were uninsured in the St. Louis community. The National Committee for Quality Assurance and the National Diabetes Education Program, both provided evidence based guidelines that outlined which quality indicators needed to be measured in order to improve health outcomes for patients with chronic conditions.

The uninsured, diabetic patients at CHIPS deserved effective, quality care. A quality improvement project was needed to implement nurse-led, evidence-based care coordination focused on the CHIPS Type II Diabetic patient population. The objective of this project was to improve the support and management of the plans of care for each individual patient and ensure patients can access the resources necessary to manage their Type II Diabetes.

Review of Literature

A systematic literature review was conducted utilizing the databases CINAHL and PubMed. Keywords included *care coordination, diabetes, diabetes type 2, nurse-managed, quality improvement, and health equity*. This literature review included articles written in the English language and ranging from the years 2008-2018.

The United States of America will see a 165% increase in those diagnosed with diabetes by the year 2050 (Thorpe, 2012). The cost of diabetes is rapidly increasing and is the largest contributor to the growth of Medicare costs over the last ten years (Thorpe, 2012). Care coordination has proven effective at reducing hospital readmissions and health care spending (Thorpe, 2012).

Trinity Clinic in Tyler, Texas piloted a care coordination model within its patient-centered medical home that serves over 10,000 patients (Mullins, Mooney, & Fowler, 2013). The intervention periods included pre-visit planning, care gap management and transitions of care after a hospital discharge (Mullins et al., 2013). Together these care coordination interventions reduced the no-show rate from 4.5% to 2.8%, increased primary care visits by 3%, increased adherence and revenue, and decreased readmissions (Mullins et al., 2013). This study did make clear that many of these patients presented with health insurance and that expanded care coordination efforts would be necessary for those who are uninsured (Mullins et al., 2013).

Johns Hopkins University implemented *The Access Partnership*, a clinic that provides healthcare for the uninsured in their community. In Baltimore, Maryland, 14% of adults are uninsured (Handy, Ma, Block, de la Torre, Langley, & Cook, 2013). The study found that indeed, expanded care coordination is necessary, as there are multiple barriers to

accessing care to improve health outcomes even when the care is affordable (Handy et al., 2013).

The Access Partnership offers uninsured members of the community specialty care and care coordination for a flat fee of \$20, which may be waived in certain circumstances (Handy et al., 2013). A total of 333 uninsured patients were referred for follow up at the TAP clinic (Handy et al., 2013). Out of this total 104 eligible patients (31%) did not enroll (Handy et al., 2013). In order to investigate why these eligible patients did not follow up a survey was conducted and eighteen of those patients responded (Handy et al., 2013).

Patients reported barriers such as needing to care for children, lack of transportation, being too sick and other expenses took precedence (Handy et al., 2013). This study concludes that removing financial barriers is not enough incentive to motivate patients to seek health care (Handy et al., 2013).

Located in Boston, Massachusetts, the Whittier Street Health Center is a federally qualified health center that serves the Roxbury neighborhood where five public housing developments are located (Hassabella et al., 2015). The health center cares for a patient population consisting of 83% public housing residents in a neighborhood that is 55.6% African American (Hassabella et al., 2015). The Whittier Street Health Center implemented a diabetic care coordination program to assist vulnerable patients navigating through the barriers perpetuated by the social determinants of health in the healthcare system.

The diabetic care coordination program included various healthcare team members that collaborated together to ensure quality care was administered (Hassabella

et al., 2015). The program recruited 175 African American women who resided in public housing to participate in the diabetic care coordination program at the health center (Hassabella et al., 2015). The majority of participants were unemployed, managing other stressors in life, lacking healthy food resources, and routine exercise prior to enrollment (Hassabella et al., 2015).

The program offered diabetes self-management education (DSME) group sessions where 148 women completed at least 80% of DSME sessions and actively participated in trainings on blood glucose monitoring and healthy food preparation (Hassabella et al., 2015). Data collected from these participants in these DSME sessions indicates a significant improvement in HbA1C, LDL cholesterol levels, and overall cholesterol (Hassabella et al., 2015). Comprehensive diabetes care is complex and the staff that implemented this program noted “‘it takes a village’ (a coordinated team)” to successfully manage diabetes for patients that are navigating the social determinants of health (Hassabella et al., 2015, p. 5). Nurse practitioners are qualified to lead care coordination team efforts that focus on complex chronic condition management.

Nurse practitioners in collaborative practice with physicians have a significant effect on improving health outcomes for those diagnosed with Diabetes Type II (Richardson et al., 2014). Kaiser Permanente produced a study that evaluated the quality of care Nurse Practitioners provided to twenty-eight adults diagnosed with uncontrolled Type II Diabetes (Richardson et al., 2014). Collected data included pre-and post-intervention values for HbA1C, BP, LDL-c, and body weight, depression questionnaire scores, and self-efficacy questionnaires (Richardson et al., 2014).

Nurse Practitioners provided individualized treatment plans and performed follow up care, referred patients to ancillary teams, and offered regular updates to the collaborating providers (Richardson et al., 2014). Significant improvements were seen in HbA1C values and self-efficacy scores, non-significant improvements were seen in blood pressure and cholesterol readings (Richardson et al., 2014). The evidence from this study displays that nurse practitioners are effective at improving clinical values in adults with uncontrolled diabetes and could potentially provide cost effective primary care. (Richardson et al., 2014).

This literature review summarizes significant evidence that care coordination is an essential strategy to improve the quality of care for Type II Diabetes patients. The literature indicates that care coordination can benefit organizations and improve their quality of care when they effectively meet evidence based performance standards. However, it is important to recognize that the evidence is widely grounded in those that have health insurance and it is necessary to focus on care coordination for those that are uninsured.

Methodology

CHIPS clinic contracted with six primary care providers and offered access to an array of specialty health care providers including those that practiced ophthalmology, podiatry, and dental. To utilize this health care team efficiently, a quality improvement project was necessary to implement nurse-led care coordination for patients diagnosed with Type II Diabetes. By implementing an evidence-based care coordination process this healthcare team was able to improve the support and management provided to Type II

Diabetic patients. The care coordination efforts ensured the clinic was utilizing evidence-based benchmarks that held healthcare organizations accountable.

To efficiently implement this project, the Plan, Do, Study, Act (PDSA) Cycle was applied. The PDSA cycle began in June 2018 when the volunteer nurse coordinator was placed at CHIPS clinic to focus on care related to the Type II Diabetic patients. This was part of the planning phase where the nurse coordinator started by forming meaningful relationships with patients, providers, staff, and administration. While caring for this patient population, the nurse coordinator assessed the need for an evidence-based care coordination tool that the health care team, including the patient, could utilize to track the plan of care together, in order to effectively manage Type II Diabetes.

Providers utilized paper charts. The nurse coordinator supported the patient and the team by managing the plan of care and assisting with scheduling appointments, educating patients about and administering glucose meters and lancets, completing applications for Medicaid, completing applications for patient assistance programs to meet insulin needs, navigating transportation issues, initiating ophthalmology referrals for surgical intervention, and many other complex issues.

Patients already working with the nurse coordinator, were educated on the project and asked if the action plan would help them manage their care better. In April 2019, the Institutional Review Board approved the quality improvement project and the *Do* phase of the PDSA cycle could begin. A data collection tool was created based upon the National Committee of Quality Assurance and the National Diabetes Education Program quality indicators that have been set to measure care and management provided to patients diagnosed with Type II Diabetes.

Data included whether indicators from the National Diabetes Education Program were met from June 2018 to June 2019. Those indicators were bi-annual HbA1C checks, an annual cholesterol and a urine micro albumin check, annual podiatry, ophthalmology, and dental exam, as well as completed flu and pneumonia vaccines (CDC, 2016). Data was collected on referrals and the acuity of barriers noted with completing the plan of care. To protect the patient and their confidentiality all data were de-identified and coded with numerical value.

From April 2019 to June 2019, the nurse coordinator approached patients that were aware and working with the nurse coordinator as well as any new patients that were referred to the program via a referral binder that was accessible to all healthcare providers and clearly marked with a red sticker. A total of 28 participants were approached, 24 consented to participate in the care coordination program. The nurse coordinator completed a retrospective review for each individual participant starting at June 2018 and collecting data up until June 2019.

The National Diabetic Education Program Action Plan was introduced to patients during a face-to-face encounter care coordination relationship. This included educating the patient about the care coordination efforts being made to improve their quality of care, what the patient responsibilities were, discussing what action plan items they had completed at CHIPS clinic and what items needed to be completed as well as what barriers the patients were experiencing when attempting to complete the plan of care. A red sticker with an action plan checklist was placed in each participants patient chart on the same page so it could be easily identified. Completed action plan items were documented along with the date the action item was completed. The nurse coordinator

continued to support and manage patients diagnosed with Type II Diabetes until June 2019 when data collection ended.

Results

Data were analyzed using Minitab Express. The analysis illustrated that participants comprised of 67% female, 33% male, 100% were African American, 45.8% lived in St. Louis County as well as St. Louis City and 8.3% resided in Illinois. The average age of this population was 52.25 and a mean blood pressure of 141/85 was noted. First check HbA1c average was 9.7% and the mean for the second check HbA1c was 8.5%. All participants were uninsured, 16% completed a LDL screening and 21% completed a urine micro albumin screening. Out of the 24 participants 37% completed an ophthalmologist visit and 25% were seen by the podiatrist. None of the participants were able to obtain a flu or pneumonia vaccine due to a lack of affordable, convenient access to vaccinations. All patients were referred to CHIPS Diabetic Support Group, which was led by a physician from a local medical research university. Four out of the twenty-four participants (17%) were present at least one meeting. Forty two percent (42%) were enrolled in a patient assistance program to ensure proper medication adherence and management, and 79% saw their primary care provider in 2019.

A paired t-test was used to analyze the relationships between seeing a primary care provider in 2019 and being enrolled in the care coordination program and if the patient completed bi-annual HbA1c checks and having a lower second HbA1c lab value. The relationship between seeing a primary care provider and being enrolled in the care coordination program both had a significant relationship with participants completing two HbA1c tests in one year (See Appendix A). A paired t-test produced a p-value of

<0.0001. A lower second HbA1c lab value was found to have a significant relationship with care coordination and seeing a primary care provider in 2019. A paired t-test produced a p-value of <0.0001. After analyzing the acuity of barriers and the relationship it has with gender and zip code, a one-way ANOVA presented a significant relationship between acuity of barriers and gender with a p-value of 0.0046 (See Appendix B).

Discussion

This quality improvement project was implemented to ensure an efficient care coordination plan was put into place for those patients who were uninsured, established at CHIPS clinic, and were diagnosed with Type II Diabetes. Despite the complexities within the healthcare system patients deserved access to quality, affordable care because they existed as human beings living in our community. While the implementation of nurse-led care coordination was noted to be a significant change, more time is needed to analyze, cultivate, and maintain the improvement.

Conclusion

Community clinics that serve their most vulnerable members were vital in Missouri because the legislature refused to expand Medicaid. CHIPS clinic was the definition of equitable healthcare. A patient who had lost their job, was out of their blood pressure medicine and could not afford any insurance plan that was available to them could not easily navigate around the barriers that prevented so many from accessing the care they needed. Supporting the management and follow through of that care, all without allowing the influence of insurance to overpower the need of the patient was necessary. It takes many volunteer providers, staff, administration, and ancillary team members who show up every single day and worked to provide for this population.

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Appendix A

Table 1

Relationship between Care Coordination, PCP Visits and HbA1C checks

Paired T-Test	P-Value	Confidence Interval	Mean
Patient Assistance and Lower 2nd HbA1C	0.3769	(-1620, 0.4120)	0.125
PCP Visit in 2019 and Lower 2nd HbA1c	<0.0001*	(0.33878, 0.73265)	0.50787
Care Coordination Enrollment and PCP visit in 2019	0.161	(-0.03027, 0.17312)	0.07143
Care Coordination and Lower 2nd HbA1C	<0.0001*	(0.41429, 0.79999)	0.60714
Attendance of DSG and Lower 2nd HbA1C	1	(-0.2792, 0.2792)	0
Care Coordination and Completed Two HbA1C	<0.0001*	(0.30256, 0.69744)	0.5
PCP Visit in 2019 and Completed Two HbA1C	<0.0001*	(0.23316, 0.62398)	0.42857

Appendix B

Table 2

Differences between Zip Code and Gender and Acuity of Barriers

One Way ANOVA	P-Value	Confidence Interval	Mean	R-sq	S
Barriers	0.1498	(1.6344, 2.2822)	1.9583	4.46%	0.788275
Zip Code	0.1498	(1.3011, 1.9489)	1.625	4.46%	0.788275
Gender	0.0046*	(1.03475, 1.63192)	1.33333	16.18%	0.726691
Barriers	0.0046*	(1.6598, 2.2569)	1.9583	16.18%	0.726691
<i>Note.</i> p-value significant at $p < 0.05$ level.					