

Southern Illinois University Edwardsville

SPARK

Doctor of Nursing Practice Projects

School of Nursing

Fall 10-28-2021

Utilization of Telephone Outreach and Telemedicine to Improve Diabetic Outcomes

Nicolas Yemm

Follow this and additional works at: <https://spark.siu.edu/dnpprojects>



Part of the [Nursing Commons](#)

Recommended Citation

Yemm, Nicolas, "Utilization of Telephone Outreach and Telemedicine to Improve Diabetic Outcomes" (2021). *Doctor of Nursing Practice Projects*. 175.

<https://spark.siu.edu/dnpprojects/175>

This DNP Project is brought to you for free and open access by the School of Nursing at SPARK. It has been accepted for inclusion in Doctor of Nursing Practice Projects by an authorized administrator of SPARK. For more information, please contact magraser@siue.edu, tdvorak@siue.edu.

Executive Summary

Introduction

Diabetes mellitus is one of the most costly, destructive diseases facing the United States (US) health care system. Medical costs associated with diabetes in the US are nearly \$330 billion annually (CDC, 2020). In addition, between 1990 and 2010, the number of people living with diabetes tripled and the incidence has doubled (Rowley et al., 2017). One of the most prevalent issues facing primary care providers in their management of diabetic patients is adherence and compliance to diabetic medications, scheduled laboratory testing, and office follow up. Further, the highest predictors of uncontrolled diabetes are appointment cancellations, no-shows, and failure to schedule follow-up visits (Eid, 2016). Telephone outreach and telemedicine are among the many strategies employed by primary care offices to address these problems. Telephone outreach can help primary care offices contact diabetic patients who may be overdue for medication refills, laboratory tests, or an office follow up. Telemedicine can also eliminate many barriers to receiving care, such as transportation issues, needing to leave work for appointments, and unnecessary office visits, while also increasing the patient's comfort and convenience.

The rural internal medicine (IM) office setting selected for this project has been underperforming in reaching diabetic hemoglobin A1C (HbA1c) metric standards. The IM office HbA1c metric provides a measurement of diabetic patients with HbA1c levels greater than eight percent. The IM office HbA1c metric at the time of the project development was in the "red threshold", which translates to less than 70% of diabetic patients in the IM office having HbA1c levels less than 8%. To achieve a "green threshold", the office HbA1c metric must translate to >75% of patients with diabetes having a HbA1c less than 8%. Through telephone outreach and telemedicine, this project aimed to get the metric into the "green threshold".

Literature Review

A literature review was conducted to determine whether the project interventions of using telephone outreach and telemedicine to improve diabetes care is supported by evidence. When considering diabetic telephone outreach programs, health systems must consider overall costs, staffing, and social determinants (i.e. patient telephone/internet access). Varney et al. (2016) performed a cost-utility analysis over a 10-year study that found the cost of delivering telephone coaching interventions was recoverable through cost savings and net health benefits, which was assessed through life expectancy and quality-adjusted life expectancy (QALE). Longitudinal studies such as this are rare in the literature, but also advantageous as it highlights the ongoing benefits of regular telephone outreach efforts in diabetes care. Schechter et al. (2012) also found the costs of implementing a telephone outreach program for diabetes management corresponded with benefits noted in patient outcomes. Barriers associated with telephone outreach often included the assumption of high-health literacy, lack of consideration of social determinants or co-morbid conditions, and too brief an intervention period.

Telemedicine is providing a valuable communicative tool for managing health conditions. Telemedicine can address many of the common barriers in regular follow up of diabetic patients, including transportation issues, geographic location, accommodating work schedules, and office visit fatigue. Buysse et al. (2020) showed over a two-year study that telemedicine in between face-to-face contacts was not only sustainable but improved glycemic control. In addition, when telemedicine is accessible, Appuswamy and Desimone (2020) reported improved disease management, patient self-management skills, enhanced efficiency and clinical decision-making, and more patient-centered care. Finally, Kiran et al. (2020) discuss telemedicine visits for diabetes management that are supported with evidenced-based interventions are a safe and efficient way to provide care.

Methods

The aim of this project was to improve HbA1c metrics in an IM office in central Illinois by using telephone outreach to improve follow up and adherence to diabetic regimens among patients aged 18-75 years old with uncontrolled diabetes (>8% HbA1c), while offering a more convenient telemedicine visit. Secondary goals of the project were to identify social determinants negatively impacting diabetes management (transportation, medication affordability, etc.), utilizing care management referrals for high-risk (for non-adherence) diabetic patients, and reducing unnecessary endocrinology specialty referrals.

The project was initiated by generating a list of patients through Epic Hyperspace who meet the dashboard HbA1c metric criteria (HbA1c >8%). Each care team, which included a physician, advanced practice provider (APP), registered nurse (RN), and medical office assistant (MOA), had an individualized list of patients who correspond to that care team. The MOAs and RNs were provided with direction for scripting telephone outreach to patients who meet the criteria and who have not had a HbA1c or office visit within the last six months. Patients who were no longer receiving care within the IM office were removed from the list. Patients who fit the criteria were offered a telemedicine visit. MOAs were also able to walk patients through the process of setting up telemedicine capabilities (through OSF MyChart app) over the phone. Patients who were following with endocrinology specialty offices were reminded to make follow-up appointments if they have not been seen within the last six months. The MOAs were encouraged to highlight patients on provider schedules daily who were part of the outreach target group. While providers were given the final say on individual care plans, in patients who met the metric criteria (HbA1c >8%), it was encouraged to recommend three month follow up using telemedicine and recommend HbA1c levels be drawn every three months until the patient was within goal.

To address the secondary goals of this project, providers were encouraged to identify potential barriers to diabetic care plan adherence. During the rooming process, a previously embedded feature in Epic Hyperspace allowed MOAs to document if social determinants were affecting a patient's ability to adhere to care plans. If social determinants were identified, it allowed providers to gauge whether patients would benefit from care management or social work referrals and if telemedicine follow up would be more beneficial. Care management referrals allowed patients to be contacted for appointment reminders, inquire about glycemic control, and manage social determinant related issues. Through these interventions, the team would be able to keep closer contact with patients, which could assist providers in appropriately titrating medications and recommending interventions in patient diabetic care plans. Finally, through the methods discussed, the project attempted to reduce the reliance on endocrinology referrals that may have been otherwise unnecessary.

Evaluation

Outcomes assessment for this project involved close review of the office dashboard HbA1c metric at the mid-way point and the conclusion of the implementation period. This metric was able to be reviewed in two ways, which included the office metric as a whole and each individual care team. The office saw an overall improvement from "red threshold" (64%) to "yellow threshold" (71%) in both the overall office dashboard metric and individual provider care teams. The two factors most likely responsible for the positive results of the study included the project interventions and removal of inactive patients, those patients who reported they were no longer receiving care at the IM office. Staff was provided an opportunity during two office meetings at the conclusion of the implementation period to provide feedback on patient outcomes, implementation processes, and overall staff experiences. This was done to assess the feelings of staff on the strengths and weaknesses of the project and identify overall areas for improvement.

Several limitations of the project methods and implementation process were noted. First, the short implementation timeframe (roughly 6 weeks) was not an adequate amount of time to truly assess the longitudinal impact of the interventions discussed for this project. Secondly, the recommendations for follow up and HbA1c assessment was left up to the individual providers, meaning there was no process set up to assess whether the project methods and implementation processes were being followed by the providers. Thirdly, staff engagement was also determined to be an issue. The project leader had to frequently remind MOA/RNs to review lists on a weekly basis to assure all patients on the lists had received telephone outreach, with subsequent follow up on those we were unable to contact or had left a voice message. Finally, internet bandwidth and technology literacy remain a considerable issue for utilization of telemedicine. Recurrent problems were noted with patients being unable to log in for telemedicine visits, or they simply did not have the bandwidth capabilities to utilize telemedicine.

Impact on Practice

The goals of this project have several positive short and long-ranging benefits for practice. The IM office leadership believe the benefits to diabetic patient outcomes make the project one that should be considered for ongoing implementation. Staff responses during post-implementation meetings conducted at the end of the project were largely positive. Roughly 75% of IM providers felt the telephone outreach and use of telemedicine for target group patients both improved patient care plan adherence and efficiency of care delivery. The concerns raised by the IM providers were primarily the technology problems patients encountered with telemedicine. The negative comments from MOA/RNs were primarily regarding staffing issues and time management in relation to incorporating the project methods and implementation processes into work responsibilities. During the debriefing process with stakeholders and the IM office manager, it was suggested incorporating the project methods and implementation processes into required job responsibilities for MOA/RN would be necessary; however, it was also noted staff shortages (MOA/RN) would likely be a potential barrier to long-range project

implementation. Additionally, bandwidth and technology concerns remain an issue at least in the short-term for ongoing use of telemedicine. Finally, to further the impact of a project of this nature, having a diabetes educator within the office to perform the telephone outreach would also likely enhance the program even further.

Conclusion

In review, DM is associated with high mortality and morbidity and results in a heavy financial burden for the US health care system. Among the many problems associated with treating diabetic patients are numerous barriers to regular follow up and social determinants that impact care plan adherence. In an IM office in central Illinois, it was identified that HbA1c diabetic metrics were not being met. Further, the office diabetic metric was in the “red threshold”, which suggested less than 70% of patients in the office aged 18-75 years with diabetes had an HbA1c less than 8%. A project was implemented in the IM office to utilize telephone outreach to increase follow up and diabetic care plan adherence, while offering a convenient option through telemedicine for the visit. The project interventions demonstrated that telephoning diabetic patients to set up appointments using telemedicine, identifying social determinants, incorporating resources such as care management referrals, and reducing barriers to care may improve diabetes care and patient outcomes. While notable limitations were identified, including a short implementation window, giving the providers discretion to decide a follow up schedule and HbA1c surveillance timelines, diminished staff engagement, staff shortages, and internet bandwidth barriers to use telemedicine, the project demonstrated long-ranging potential and support to continue in the IM office.