



# Benefits of Electronic Consultations in Improving Diabetes Care Within a Safety-Net Health System

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Quality Improvement Success Stories are published by the American Diabetes Association in collaboration with the American College of Physicians and the National Diabetes Education Program. This series is intended to highlight best practices and strategies from programs and clinics that have successfully improved the quality of care for people with diabetes or related conditions. Each article in the series is reviewed and follows a standard format developed by the editors of *Clinical Diabetes*. The following article describes an initiative aimed at improving access to diabetes specialty care for patients within a safety-net health system in Dallas County, TX, through the implementation of electronic consultations.

## Describe your practice setting and location.

The Parkland Diabetes Clinic is part of Parkland Health, a safety-net health system serving a large under- or uninsured, ethnically diverse population in Dallas County, TX. Parkland is also one of the main clinical teaching sites for the University of Texas Southwestern (UTSW) Medical Center. The Diabetes Clinic practice consists of two endocrinologists, seven advanced practice providers, a clinical pharmacist, two certified diabetes care and education specialists (one with a registered nurse

background and the other with a registered dietitian background), a social worker, and part-time psychiatrist and psychologist. One half-day of each week the clinic also hosts the teaching clinic for endocrinology fellows and internal medicine residents with six rotating UTSW faculty endocrinologists. The clinic sees ~700 people with diabetes per month who are ethnically diverse (50% Hispanic, 30% Black, 15% non-Hispanic White) and mostly unfunded or underinsured (50% receive charity care and <10% have commercial insurance) (1). The majority of clinic referrals come from Parkland's 13 community-oriented primary care (COPC) satellite clinics located throughout Dallas County, as well as referrals for patients discharged from the hospital and other specialty clinics. The clinic also accepts referrals from primary care providers (PCPs) outside of the Parkland Health system.

## Describe the specific quality gap addressed through the initiative.

This project focused on improving access to diabetes specialty care within a safety-net health system. As of 2018, the prevalence of diabetes in Texas was ~12%, which is higher than the national average (2). Diabetes tends to disproportionately affect patients from racial/ethnic minority groups and those with lower levels of education, and such patients make up a large percentage of the health system's population of >40,000 people with diabetes.

At Parkland Health, PCPs provide the majority of diabetes care. PCPs can refer patients to Parkland specialty care clinics, but timely access to specialty care can be limited for several reasons, including insufficient number of providers and clinic resources to meet the overwhelming demand for specialty care. To manage this high demand, we have implemented stricter referral criteria and accept only individuals with poorly controlled type 2 diabetes (A1C >9%) who are on insulin, type 1 diabetes, atypical diabetes, or special diabetes cases

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(e.g., patients with diabetes during pregnancy, in need of perioperative glycemic management, or experiencing frequent hypoglycemia). Other barriers to attending diabetes specialty care appointments within our population include socioeconomic barriers such as a lack of funds to afford additional doctor visits, transportation issues, costs of parking fees, and dependent care issues, among others.

The difficulty in accessing specialty care in a timely manner can contribute to higher no-show rates and treatment nonadherence, leading to greater health care resource utilization, such as emergency room visits and hospitalizations for acute diabetes-related complications, and increased overall health care costs.

### How did you identify this quality gap? In other words, where did you get your baseline data?

To better understand the state of diabetes care at Parkland before the initiative, we obtained and analyzed baseline data from the Parkland Diabetes Registry. In addition, we reviewed the referral process and timeline for the Parkland Diabetes Clinic to specifically identify the quality gap associated with access to diabetes specialty care.

### Summarize the initial data for your practice (before the improvement initiative).

At the start of the initiative in 2017–2018, ~37,000 people with diabetes had completed an office visit at Parkland over a 1-year period. Ninety-five percent of these patients had type 2 diabetes, and of these, 62% had an A1C >7%, and 27% had an A1C >9% (3). Of a total of 1,046,806 outpatient visits at Parkland in 2017, 345,681 were specialty care visits. The typical wait time between when a referral order was entered and the scheduled new patient appointment at Parkland was 2–4 months, and at its worse could be 4–5 months. Analysis of Parkland Diabetes Registry data also highlighted another quality gap in diabetes care, namely, that 82% of patients with an A1C >9% were not prescribed insulin (3). This finding was attributed in part to therapeutic inertia surrounding insulin initiation and intensification among the PCPs.

### What was the time frame from initiation of your quality improvement (QI) initiative to its completion?

The QI intervention to provide a diabetes electronic consultation (e-consult) service was initiated in 2017

and is ongoing. The data collection for assessing the efficacy of the QI intervention was obtained from review of e-consults completed between 2018 to 2021.

### Describe your core QI team. Who served as project leader, and why was this person selected? Who else served on the team?

The two Parkland Diabetes Clinic endocrinologists served as project leaders for the QI initiative. The endocrinologists are well known for their diabetes expertise, are familiar with the process of initiating new programs within the health care system, and have established relationships with Parkland COPC providers. The team also included a third endocrinologist who joined the practice in 2020 and a medical student who assisted with data collection and analysis.

### Describe the structural changes you made to your practice through this initiative.

E-consult functionality was created within the health system's electronic medical record (EMR; EPIC) for select specialties, including diabetes, as part of a broader initiative to improve access to care. This functionality allows a PCP to enter an e-consult request as an order in a patient's chart. The e-consult order panel requires the PCP to enter the reason or question for the e-consult and provides space for the PCP to enter additional patient clinical information if necessary. The order triggers an in-basket message within the EMR to be sent to the specialists, who are then able to open an e-consult encounter for the patient, review the patient's chart, and create a note with recommendations. If the referral is deemed too complex to address as an e-consult, an in-person appointment with the specialist is facilitated. Once the e-consult encounter is completed, the PCP receives a notification via EMR in-basket message with the specialists' recommendations. The expectation is for e-consult requests to be completed within 72 hours. The endocrinologists receive 1.4 relative value unit (RVU) work credit for completing an e-consult request, which typically takes 15–30 minutes. The RVU credit is less than for a typical 45-minute new patient office visit (2.6 RVUs) or a 30-minute office follow-up visit (1.9 RVUs), but is comparable to a 30-minute new-patient office visit (1.6 RVUs) or a 15-minute office follow-up visit (1.3 RVUs).

Based on review of the e-consult questions, the Parkland Diabetes Clinic team has developed case-based bi-weekly 30-minute interactive educational webinars for PCPs addressing diabetes medications and management

## QUALITY IMPROVEMENT SUCCESS STORY

challenges. PCPs from the many different Parkland COPCs are able to join the sessions online during their lunch hour without having to travel offsite and receive continuing medical education credit for attendance. These sessions have provided a convenient educational and collaborative opportunity to improve overall diabetes care within this large safety-net health system.

### **Describe the most important changes you made to your process of care delivery.**

The creation of the e-consult service alters the process of how people with diabetes are able to access input from diabetes specialists in several ways.

In the traditional referral flow, PCPs entered the Diabetes Clinic referral, the patient then waited for at least 2–4 months for the specialty clinic appointment, and the patient then traveled to the specialty clinic to be physically evaluated by a diabetes specialist, who provided recommendations directly to the patient and implemented them. The diabetes specialist's recommendations were shared with the patient's PCP after the visit was completed. However, with the new e-consult system, the PCP has direct and much faster access to diabetes specialists' input, typically within 72 hours. Moreover, there are no restrictions on e-consult referrals such as A1C cutoffs, and some of the socioeconomic barriers (e.g., travel issues and the cost of additional visits) are eliminated with e-consults, which increase the number of people with diabetes who are able to be evaluated by a diabetes specialist.

E-consults also differ from traditional referrals in that the recommendations they yield are completely based on chart review since the specialists do not directly interact with the patients. The PCPs are responsible for relaying and implementing specialists' recommendations. For these reasons, e-consult may not be appropriate for all patients, especially those with more complex cases. However, one of the benefits of e-consults is that they provide the ability for specialists to triage care (4). From a brief chart review, the specialists can determine which patients require in-person evaluation versus an e-consult only. This ability potentially decreases the number of unnecessary in-person specialty clinic visits and increases clinic staff capacity to see more complex cases, which in turn should shorten wait times for in-person referral visits and reduce no-show rates.

Finally, e-consults provide novel ways to deliver education to PCPs. PCPs are able to obtain individualized feedback on their management of people with diabetes

through the diabetes specialist e-consult recommendations. The diabetes specialists typically include one or two teaching points in their responses to help expand the referring clinicians' diabetes management skills. In addition, reviewing the e-consult questions can identify common knowledge gaps in diabetes care among the PCPs. This information can then be used to create educational series for a larger PCP audience to review diabetes care topics relevant to primary care settings, combat therapeutic inertia, and improve overall diabetes care within the health care system.

### **Summarize your final outcome data (at the end of the improvement initiative) and how they compared with your baseline data.**

Between 2018 and 2021, a total of 277 e-consults were completed for 266 patients. The volume of e-consults increased yearly from 73 in 2018–2019, to 86 in 2019–2020, to 118 in 2020–2021. Patients having e-consults had a mean age of  $52.8 \pm 12$  years, 65% were female, 46% were Hispanic, 39% were Black, 9% were Caucasian, 91% had type 2 diabetes, and 76% were on insulin therapy. Forty-seven percent of the patients were unfunded, and 34% had Medicaid and/or Medicare. The average e-consult completion time was 2 days, which means that PCPs were able to obtain diabetes specialists' input within a few days of placing a referral instead of waiting for months. Some of the PCPs preemptively scheduled a 2-week follow-up appointment with the patient after submitting the e-consult request to discuss and implement the recommendations. The majority of the e-consult questions (90%) were about therapy intensification, insulin initiation/titration, or the addition of newer diabetes medications (glucagon-like peptide 1 receptor agonists or sodium-glucose cotransporter 2 inhibitors). Answering these questions helped to address therapeutic inertia among PCPs. Other questions pertained to alternate methods of assessing glycemic control when A1C is inaccurate and to clarifying the diagnosis or type of diabetes. Specialist recommendations were fully or partially implemented for 78% of all of the e-consults. The main reason for not following e-consult recommendations was the lack of a follow-up visit with the referring PCP.

For the 145 patients with reliable A1C data at baseline and within 3–6 months of e-consult completion, we observed an improvement in A1C from  $10.1 \pm 2.1$  to  $9.3 \pm 1.8\%$  (paired *t* test  $P < 0.05$ ), with a mean change of  $-0.7 \pm 1.8\%$ . Average A1C was calculated for the comparison if a patient had more than one A1C value

within the 3- to 6-month follow-up period. E-consult recommendations were fully or partially implemented for 83% of these consults. Fifty-one percent of these patients were subsequently referred for in-person diabetes clinic visits for various reasons, including the case being deemed too complex for an e-consult, a lack of A1C improvement, a patient having follow-up with a different PCP who was not as comfortable with diabetes management, or a patient who was previously seen at the Diabetes Clinic but was lost to follow-up. Sometimes PCPs would also enter both e-consult and in-person consult requests with the intention of initiating therapy changes early with the e-consult recommendations, but still having the patient be evaluated in person at the Diabetes Clinic. Improvement in A1C within 3–6 months was observed for both patients who received only e-consult recommendations (from  $9.5 \pm 2.0$  to  $8.9 \pm 1.8\%$ , paired *t* test  $P < 0.05$ ), as well as for those who were subsequently referred for an in-person visit (from  $10.6 \pm 2.1$  to  $9.8 \pm 1.7\%$ , paired *t* test  $P < 0.05$ ). With the implementation of the e-consult service, the typical clinic wait time for an in-person referral has improved to 1–3 months.

### What are your next steps?

Given the positive impact we observed, we have integrated the diabetes e-consult service into our routine clinical practice. One common limiting factor to a successful e-consult outcome was the lack of a follow-up visit with the referring provider. We plan to collaborate with the referring providers to develop an effective solution for this problem. One possibility would be to make scheduling the 2-week PCP follow-up appointment after an e-consult a routine part of the e-consult referral process. Conducting a survey to assess PCPs' and patients' satisfaction with the e-consult process would also be informative for improving the service.

### What lessons did you learn through your QI process that you would like to share with others?

E-consults are an effective way to improve access to specialists' input within a resource-limited health care setting. They significantly decrease wait times for receiving

specialists' input from months to days. Moreover, they potentially increase the number of patients who can receive specialty input and reduce the costs associated with in-person visits and delayed care. In the context of diabetes, we found that most PCPs are comfortable with accepting and implementing e-consult service recommendations made solely on the basis of EMR review. In fact, we observed an improvement in average glycemic control within 6 months of e-consult completion. Because they exclude the ability of specialists to directly evaluate patients, e-consults may not be appropriate for every patient. However, the e-consult service provides the ability to triage patient care and allocate specialty care resources accordingly. Finally, e-consults can serve as a great educational tool by identifying common knowledge gaps in diabetes care among PCPs, which then become a driving force for creating educational programs to improve overall diabetes care within a large safety-net health system.

### DUALITY OF INTEREST

L.M. is currently employed by Sanofi. No other potential conflicts of interest relevant to this article were reported.

### AUTHOR CONTRIBUTIONS

F.G. collected the data and wrote the manuscript. S.A. assisted with data collection. L.M. and U.G. provided background information and reviewed/edited the manuscript. F.G. is the guarantor of this work and, as such, had full access to all the data included and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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