Improving Efficiency of Self-Monitoring Blood Glucose Reporting Among Patients with Type 2 Diabetes via Telecommunication

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Background

- Type 2 diabetes is a complex, chronic disorder affecting an estimated 30.3 million in the United States with an estimated cost of $245 billion.[2]
- Treatment requires continuous care and self-management to reduce risks of serious complications including blindness, amputations, heart disease, and cerebrovascular accident.[1]
- Self-monitoring of blood glucose (SMBG) is integral to self-management, but studies show few patients routinely monitor this.[4]
- Only 35% of reviewed charts indicated SMBG records were brought to the last office visit. During patient interviews, 75% of patients stated they did not understand the purpose of SMBG.
- With the greatest predictor of glycemic control being adherence to monitoring and treatment, this was clearly an aspect of care needing improvement.[3]

Aim

The aim of this quality improvement (QI) project was to increase reporting of SMBG in patients with type 2 diabetes to 50% within 90 days.

Planned Improvement

- This QI project was implemented in a rural diabetes and endocrinology clinic over an 11-week period via four plan-do-study-act (PDSA) cycles.
- Data was collected via baseline chart audits and surveys.

	PDSA Cycle 1	PDSA Cycle 2	PDSA Cycle 3	PDSA Cycle 4
Team Engagement	Kick off meeting	Change time and location of team meeting	Include content on poor wound healing at the next team meeting, share patient feedback at meeting	Host dietitian as a guest speaker
Patient Engagement	SMBG tool given to patients with type 2 diabetes when roomed	Place ink pens in each exam room for use with the SMBG tool	Expand SMBG tool to type 1 diabetes patients, post the "top five" reasons to monitor blood sugar in WR	Expand use of the SMBG tool to include patients with all types of diabetes
Pre-visit Calls	Pre-visit phone call approximately one week before visit	Add a discussion about FollowMyHealth to the pre-visit phone calls and any other phone conversations with patients	Eliminate FollowMyHealth discussion from the pre-visit phone calls, change time of day calls are placed	Discuss the new features of FollowMyHealth during the pre-visit call with patients who already have an account
FollowMyHealth	Obtain email addresses of patients at check-in	Signage in exam rooms, mass messages, persons to assist with FollowMyHealth registration	Provide an email address to send SMBG records, send mass message (contingent on IT)	Send mass message to all patients within the organization who currently have a FollowMyHealth account

References

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Results

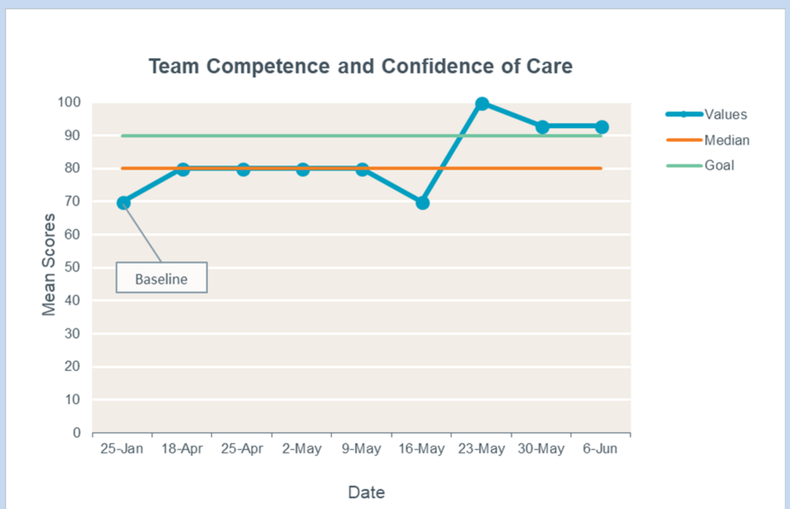

Figure 1. Team competence and confidence of care for patients with type 2 diabetes rose to 93% after interventions including team meetings and emails, changing time and locations of the meetings, including content related to care of patients with type 2 diabetes at the meetings and in the emails, and hosting a guest speaker.

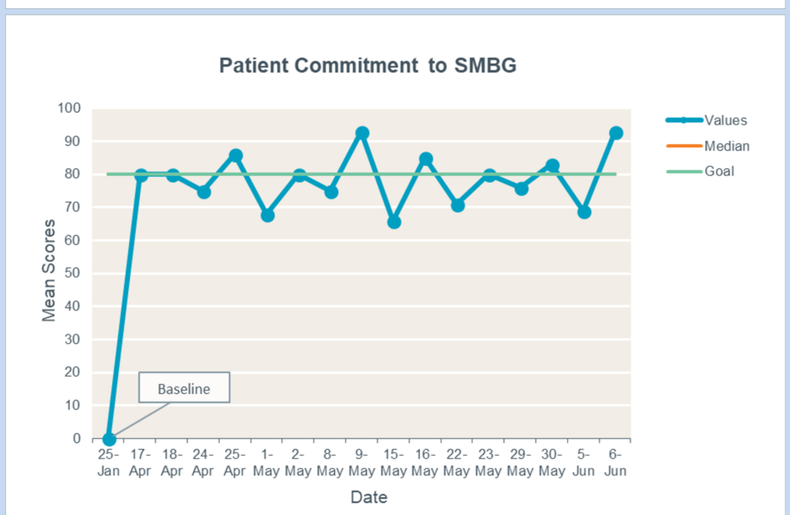

Figure 2. Patient commitment to SMBG rose to 93% after initiating the SMBG tool and expanding its use twice during the project. The week five spread included type 1 diabetes patients while the week seven spread included all patients with various types of diabetes including gestational, post-pancreatectomy, and type 1.5 diabetes.

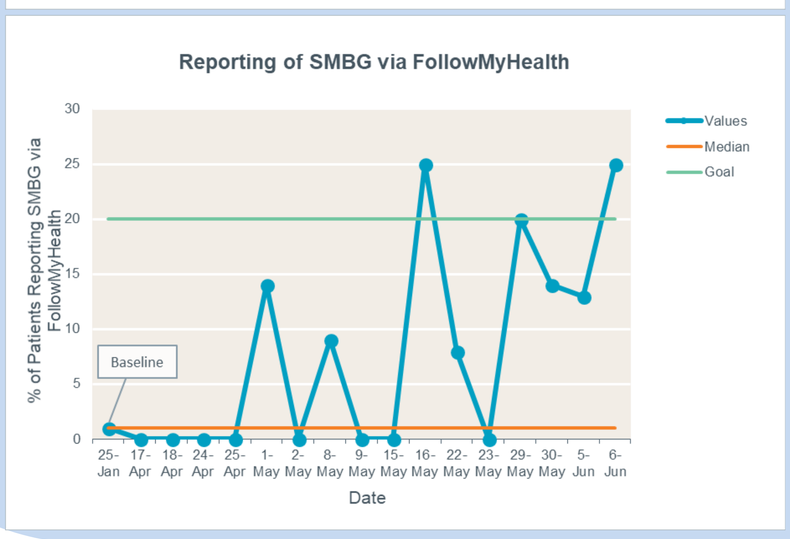

Figure 3. Reporting of SMBG records via FollowMyHealth rose to 25% after interventions that included obtaining email addresses from patients at check-in, adding signage throughout the clinic, team assisting patients with FollowMyHealth registration, and sending mass messages to patients with FollowMyHealth accounts.

Measures

Measures		Baseline	Final Cycle Results
AIM: *Increase the reporting of SMBG in patients with type 2 diabetes to 50% within 90 days.*		35%	86%
Team Engagement	**Process**: Team training and competency building	60%	80%
	Outcome: Team competence and confidence of care	70%	93%
Patient Engagement	**Process**: SMBG planning tool completed	N/A	100%
	Outcome: Increased commitment to SMBG	N/A	93%
Pre-Visit Calls	**Process**: Scripted pre-visit phone call	N/A	100%
	Outcome: Increase the number of patients with type 2 diabetes who bring SMBG records to visits to 50% by June 22, 2018	N/A	88%
FollowMyHealth	**Process**: Increase FollowMyHealth utilization	2%	25%
	Outcome: Increase the number of patients utilizing the FollowMyHealth to share SMBG records	1%	25%
Balancing Measure Decrease in team satisfaction		70%	67%

- Qualitative data was used to analyze the team's perceptions of the project and its benefit to patients.
- Quantitative data of the team's competence and confidence of care was assessed, converted to percentages, and plotted on run charts.
- Quantitative data was also collected from completed SMBG tools, daily appointment schedules, and chart audits and reviewed using run charts.
- Run charts were analyzed following each PDSA cycle to assess shifts, trends, or variations.

Conclusions

- The aim of increasing the reporting of SMBG in patients with type 2 diabetes was met with a final cycle result of 86%.
- The outcome of this project was more engaged team members and patients, more frequent communication with patients, and an easier method of communicating SMBG.
- Portions of this project are sustainable such as continuing team engagement and integrating the SMBG tool into the EHR. This project could be spread to other clinics as this project proved small tests of change utilizing telecommunication in the type 2 diabetes patient population could improve SMBG reporting.
- Moving forward, review of this project by the QI department will aid in future spread to other locations.

Lessons Learned

- Factors that promoted the success of this project included a supporting mentor, an energetic nurse, a team excited to be a part of QI, patient willingness to participate, and personal buy in.
- Barriers to success included lack of communication from the IT department, organizational restructuring of practice management, and time.
- Team engagement resulted in increased competence of type 2 diabetes care. Engaging patients increased commitment to SMBG. Pre-visit calls increased SMBG records brought to visits or transmission of records before visits. Improving the efficiency of existing resources allowed for photo messaging and an increase in FollowMyHealth utilization.

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