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In-Patient Self-Management Diabetes Education

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University of San Francisco
CNL Online Program
Prospectus Summary Brief
In-Patient Self-Management Diabetes Education
Amy Matthews, R.N.

Specific Aim

We aim to improve and standardize diabetes education for in-patients with diabetes by June 2015. We will have 100% participation among designated disciplinary staff and 100% compliance with following a standardized education plan by September 2015.

Background

Henry Mayo Newhall Hospital is a 238-bed, not-for-profit community hospital and trauma center located approximately 30 minutes north of Los Angeles. Many programs within the institution are Joint Commission–certified. The diabetes program hopes to be accredited by the Joint Commission by May 2016. The microsystem is a medical surgical unit for patients 18 years and older who present with diabetes as either a primary diagnosis or secondary diagnosis. Fifty percent of the diabetes patients in this unit are ages 65–89 years old, and 29% are ages 50–64; of those, 52% are male, compared to 48% female. The unit has 32 beds and is filled to capacity 95% of the time. Based on the large number of patients with diabetes, a need has been identified for a diabetes self-management program.

Supportive Data

Figure 1 in Appendix A demonstrates the process flow in the medical surgical unit for patients with a diagnosis or history of diabetes. The process map flowchart helps to identify missing patterns and metrics for this unit that are specific to diabetes care. One identified gap in care is a standardized education element.

Table 1 and Figure 2 in Appendix B show the readmission rate for diabetes patients, broken down into specific types. Table 1 shows the essential need for enhanced individualized in-patient diabetes self-management education. The index count is the total number of patients admitted with a diabetes diagnosis. The return count is the number of patients who returned to the hospital for greater than 30 days. The readmit rate is the number of patients who returned to the hospital within 30 days of their first admission. A total of 16.6% of patients with diabetes returned within 30 days, which has caused significant fines and penalties enforced by the Centers for Medicare and Medicaid Services (CMS; 2014).

Figure 3 in Appendix C compares the hospital's HCAHPS scores for FYs 2011–2014. The categories are separated into how the patients rated the hospital overall, if the patients would recommend the hospital, nurse communication, physician communication, overall responsiveness of staff, and overall discharge process. Great strides and improvements have been made from FY 2011 to 2014 in all areas except discharge, due in part to previously implemented quality improvement initiatives, such as the stroke program and palliative care program, which

are similar in nature to the proposed vision of the improved diabetes self-management patient education initiative. Communication regarding medications is the highest it has ever been, at 64th percentile nationally.

A root cause analysis (RCA) was done in FY 2014 and is demonstrated in Figure 4 in Appendix D. The fishbone diagram demonstrates the causes of insufficient diabetes self-management education in the medical surgical unit. The major categories are: materials, staffing, processes, and communication. Each sub-category describes specific causes that may be attributed to the specific aim statement. The diagram identifies deeper issues within the unit as potential causes of our problems, such as but not limited to having an RN “diabetes champion” in the unit and videos for patients to watch while hospitalized.

Microsystem Status Relative to the Project

The SWOT analysis in Figure 5 (see Appendix E) indicates considerable support for the project and three threats addressed in the project. The high percentage of insured population that the hospital serves and the hospital’s associated financial stability demonstrate strengths. Also, other specialized programs are already implemented at Henry Mayo Hospital that contribute to the reputation of outstanding care. The threats are lack of available government funding; due to low percentage of underserved clientele; lack of diabetes-certified personnel; and competitors that are Joint Commission–certified and recognized by the American Diabetes Association. The weaknesses identified in this analysis are not viewed as barriers that would make a huge negative impact on the program’s success, when weighed against the facility’s strengths. This project is of interest to patients, professionals, and the institution as an aspect of patient safety and satisfaction. Improved self-management of diabetes is a benefit to all stakeholders.

Summary of Evidence

The references in this review support the project to standardize diabetes self-management education for in-patients with diabetes. The evidence-based practice articles were found in the Cochrane Library using CINAHL Plus with Full Text database. The keywords used were “diabetes” and “education.” The articles assisted with our clinical decision-making efforts regarding diabetes education.

Healy et al. (2013) asserted that formal in-patient diabetes education (IDE) was autonomously associated with a lower occurrence of all-cause hospital readmissions within 30 days. Magee et al. (2014) asserted that a competency-based diabetes education program improves post-discharge medication adherence. Martin et al. (2013) verified that many programs do not have a written curriculum, which is considered to be a critical component in a diabetes program; its absence contributes to declining patient satisfaction surveys. Seivers et al. (2014) have proven that education and engagement of staff are of great importance and can be done by using the standardized “define, measure, analyze, improve, control” (DMAIC) framework process. Finally, Wexler et al. (2012) asserted that in-patient diabetes management and education significantly improved glycemic control one year after discharge in patients newly discharged on insulin.

Theoretical Direction

Lippitt's theory of change and a democratic leadership style are currently being used to direct this project. Lippitt's theory has helped to identify and assess the microsystem that enabled the non-standardization of diabetes education at our facility to be identified. Lippitt's theory has seven stages of change; we began with Stage 1: diagnosing the problem. The interprofessional members were involved in identifying and assessing the microsystem that enabled the non-standardization of diabetes education at our facility to be identified. Second, the capacity and motivation for this particular change were assessed, with the conclusion that the program's diagnosis, resolutions, and goals are obtainable. The fourth step and goal was to develop action plans using a multidisciplinary approach. This was achieved through multiple brainstorming sessions that resulted in great outcomes and ideas.

A facilitator, a communicator, and experts on diabetes self-management education were identified and chosen. The idea for change is in the facilitation mode and is currently in progress. Once the change is fully implemented, discussions will be held on how to maintain the change and obtain feedback from staff, the end users, and patients. The metrics of the change's success will include compliance monitoring by staff and follow-up calls to patients in order to determine if target blood sugar goals and care plan objectives have been met. The metrics and standards will be adjusted to further standardize diabetes self-management education. The goals are for the change to become part of the facility's culture, and every effort will be made to maintain standardized, evidence-based best practices (Mitchell, 2013). Strong support and motivation for this program from chief executives and stakeholders have allowed the needed resources to be easily available.

Stakeholders

A stakeholder analysis identified many members who are affected by the organization's decision to develop the diabetes program. The identified stakeholders include the institution, including its chief executives; community members, families, and patients with pre-diabetes or diabetes of any type; staff in the medical surgical unit; bedside nurses; endocrinologists and other physicians; the American Diabetes Association; and the Joint Commission.

Business Case

The estimated cost for a student CNL is projected to be \$8,904.00 for 14 weeks of training. In addition, a full-time registered dietician and certified diabetes educator has been hired at an annual salary of \$86,000.00. Salary plus vacation, sick time benefits and retirement contributions will equal \$12,904.99 for an FTE student CNL; in addition, annual conferences will cost an approximate \$1,175.00 per year. Information was obtained from an article in the *Diabetes Educator*, by Boren et al. (2010), in order to review the published literature and evaluate the economic benefits and costs associated with a diabetes education program. The estimated costs were developed based on evidence that diabetes self-management education (DSME) participants had a 0.45% decline in mean A1C, as well as fewer hospital admissions, emergency room visits, and outpatient visits. Table 2 in Appendix F represents the net benefit of starting the diabetes program, with its focus on improved diabetes self-management education

for in-patients. The table represents a one year start-up net benefit analysis. The net benefit totals a profit of \$121,729.00.

Methods

Goals were previously identified related to improved patient self-management education and standardization. The original aims were determined and measured by outcomes performed using the PSDA and PDSA cycles. This allowed for the standardization of tasks that are fundamental for continuous improvements and will be embedded into daily practice (Nelson et al., 2007). Action plans were developed using a multidisciplinary approach through multiple brainstorming sessions that resulted in great outcomes and ideas. The action plans included evidence-based in-patient and out-patient education classes that will enable the facility to seamlessly follow the patient throughout the continuum of care. In-patient, one-on-one teaching is being implemented to identify urgent patient needs regarding diabetes self-management education. A facilitator, a communicator, and experts on diabetes self-management education were chosen and identified to carry out these action plans.

Steps for Implementation

Figure 6 in Appendix G highlights the steps being implemented in developing the diabetes program. The development of evidence-based, best practice, standardized education plans is nearly completed but the plans will be used in two ways: for one on one, in-room teaching of patients and families with diabetes on self-managing diabetes and to develop a self-management action plan. An additional educational curriculum will be for daily group education classes that allow both inpatients and outpatients to participate. Research into effective teaching methods was done and money was spent on visual learning aid materials, posters, books, and self-management aids for patients. Simultaneously, assessment and evaluation plans are being prepared to be built into the Meditec electronic system. This will help in gathering the metrics needed for certification. Once the educational components and documentation components are fully engaged, identification of gaps in processes and an evaluation will be done. Additional steps in the implementation plan are in the following Evaluation section.

Evaluation

Once the education and classes are fully implemented, discussions will be held on how to maintain the change; improve processes; and obtain feedback from staff, the end users, and patients. Additional PDSA cycles will be identified. Metrics that matter will be used to measure the success of the education provided and will include compliance monitoring by staff and follow-up calls to patients in order to determine if target blood sugar goals and care plan objectives have been met. Metrics and standards will be adjusted to further improve the standardization of self-management of diabetes education. The goals are for the change to become part of the facility's culture, and every effort will be made to maintain standardized, evidence-based best practices (Mitchell, 2013). On the agenda to be evaluated are current and added protocols, team member roles, and the process of staff education.

Results

The activities in the timeline (Figure 6, Appendix G) indicate that we have met all of our previously placed goals. The physician champion was identified, along with other key team members. A certified diabetes educator (CDE) who is a registered dietician (RD) was hired and is imperative to the group, as evidenced by The Joint Commission's (TJC's) standards. Using a multidisciplinary approach, the program's mission statement was developed and research on best practices was used in developing the program. Process flow charts, SWOT analyses, and PDSA were used and analyzed as a group. Gaps in staff knowledge and processes, as well as strengths, weakness, opportunities, and threats, are being continuously assessed; additionally, continuous quality improvement is being monitored. Evidence-based clinical guidelines helped the committee develop educational materials for patients, as well as standardize education for 1:1 and group class curriculums, nurse competencies, and education. Current order sets were reviewed and are currently in revision, according to the group's recommendations, as identified in recurrent PDSA cycles. New protocols are currently being developed and are ready for several committees to review. Teaching models were approved by the administration, and assessments are in the process of being built into Meditec. We are on target to disseminate educational materials to staff and offer classes to patients at the end of May. Patient education at the bedside regarding the seven self-care behaviors of diabetes, as recommended by the American Association of Diabetes Educators, is already being done. Final areas of the program to be completed are to gather data, identify and measure metrics, and continue with PDSA cycles.

Outcomes

Although it is premature to assess the interventions' outcomes, the project's building and the implementation of goals addressed on the timeline have been met and are on target. The Diabetes Committee has a great amount of enthusiasm for the educational curricula developed and is anticipating requests from staff and patients for additional classes. Overall, the Diabetes Committee worked well in collaboration with one another and looks forward to involving other key stakeholders in the process as the program grows.

Recommendations

The recommendations are to continue reviewing, developing, and identifying gaps in care of the educational curricula, both individual and group. The curricula will be refined to match the patients' needs using the PDSA cycles and current evidence-based practice guidelines. Other gaps in the program's processes will be identified, such as ensuring seamless transitions throughout the care continuum of the patient with diabetes. Other recommendations are to work on expanding the diabetes program out to the community with an outpatient diabetes program that includes support groups and educational classes. Continuing to work towards TJC certification and ADA recognition will remain future goals of the program.

References

- Boren, S. A., Fitzner, K. A. Panhalkar, P. S., & Specker, J. E. (2010). The diabetes educator. *Costs and Benefits Associated With Diabetes Education: A Review of the Literature*, 35, 72–75.
- Centers for Medicare and Medicaid Services. (2014). Readmission reduction program. Retrieved from <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html>
- Healy, S. J., Black, D., Harris, C., Lorenz, A., & Dungan, K. M. (2013). Inpatient diabetes education is associated with less frequent hospital readmission among patients with poor glycemic control. *Diabetes Care*, 36, 2960–2967.
- King, C. R., & O'Toole, G. S. (2013). *Clinical nurse leader: Certification review*. New York, NY: Springer Publishing Company.
- Magee, M. F., Khan, N. H., Desale, S., & Nassar, C. M. (2014). The diabetes to go: Knowledge- and competency-based hospital survival skills diabetes education program improves postdischarge medication adherence. *The Diabetes Educator*, 40, 344–350.
- Martin, A. L., Warren, J. P., & Lipman, R. D. (2013). The landscape for diabetes education: Results of the 2012 AADE National Diabetes Education Practice Survey. *The Diabetes Educator*, 39, 614–622.
- Mitchell, G. (2013). Selecting the best theory to implement planned change. *Nursing Management*, 20(1), 32–37.
- Nelson, N. C., Batalden, P. B., & Godfrey, M. M. (2007). *Quality by design: A microsystem approach*. San Francisco, CA: Jossey-Bass.
- Sievers, B. A., Negley, K. D., Carlson, M. L., Nelson, J. L., & Pearson, K. K. (2014). Enhancing diabetes management while teaching quality improvement methods. *The Journal of Continuing Education in Nursing*, 45, 14–19.
- Wexler, D. J., Beauharnais, C. C., Regan, S., Nathan, D. M., Cagliero, E., & Larkin, M. E. (2012). Impact of inpatient diabetes management, education, and improved discharge transition on glycemic control 12 months after discharge. *Diabetes Research and Clinical Practice*, 98, 249–296.

Appendix A Process Map Flowchart

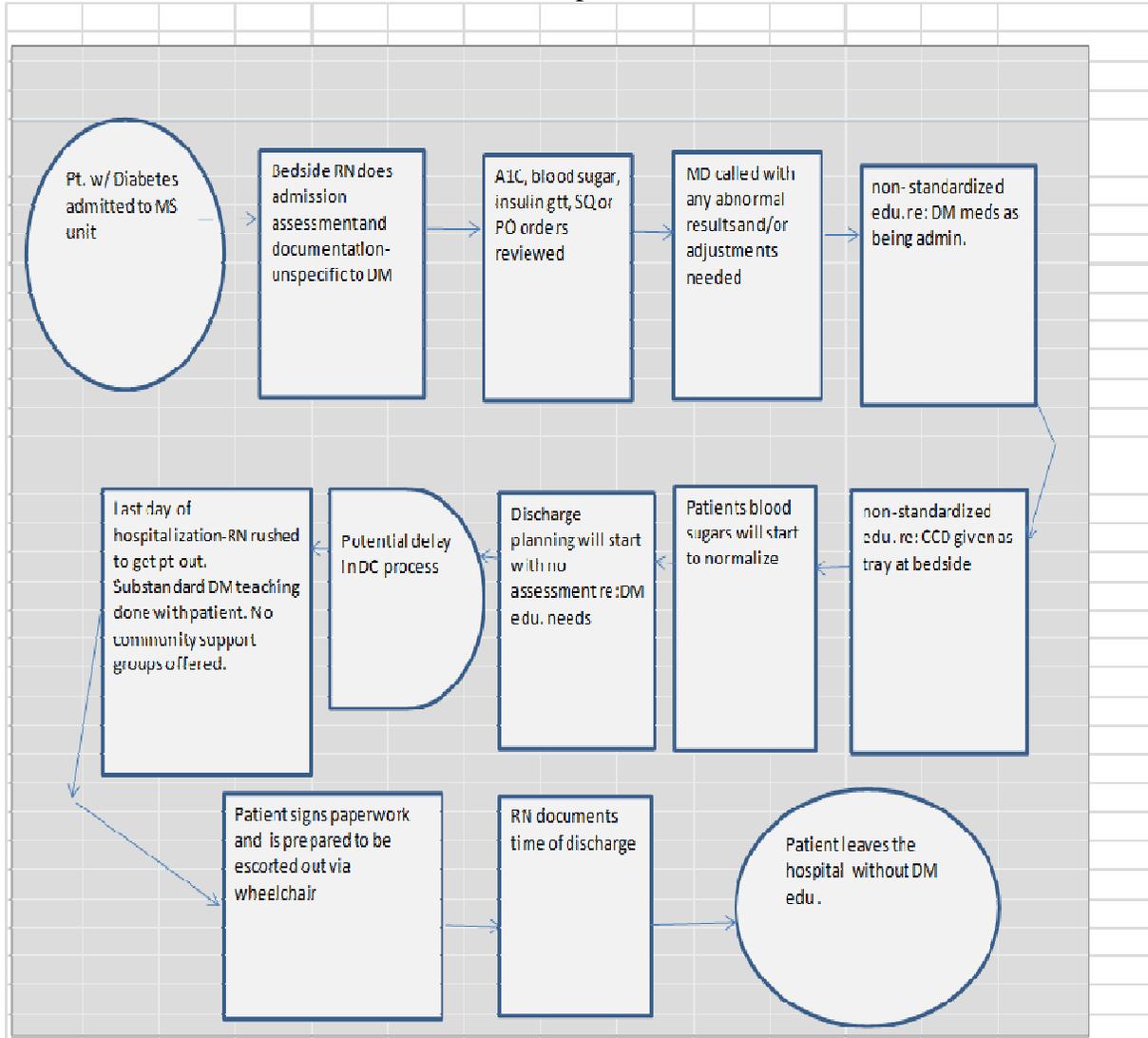


Figure 1. Process map flow chart for managing diabetes patients from admission to discharge.

Appendix B

Table 1

Diabetes Readmission Rate from Henry Mayo Hospital by Type, FY2014

Type	Index count	Return count	Readmit Rate
DKA	95	19	20
Gestational	9	1	11.1
Hypoglycemia	98	13	13.3
Other	29	10	34.5
Type 1	49	10	20.4
Type 2	2151	350	16.3
Totals	2431	403	16.6

Note: Data for readmission rates adopted from Henry Mayo Newhall Hospital, FY 2014.

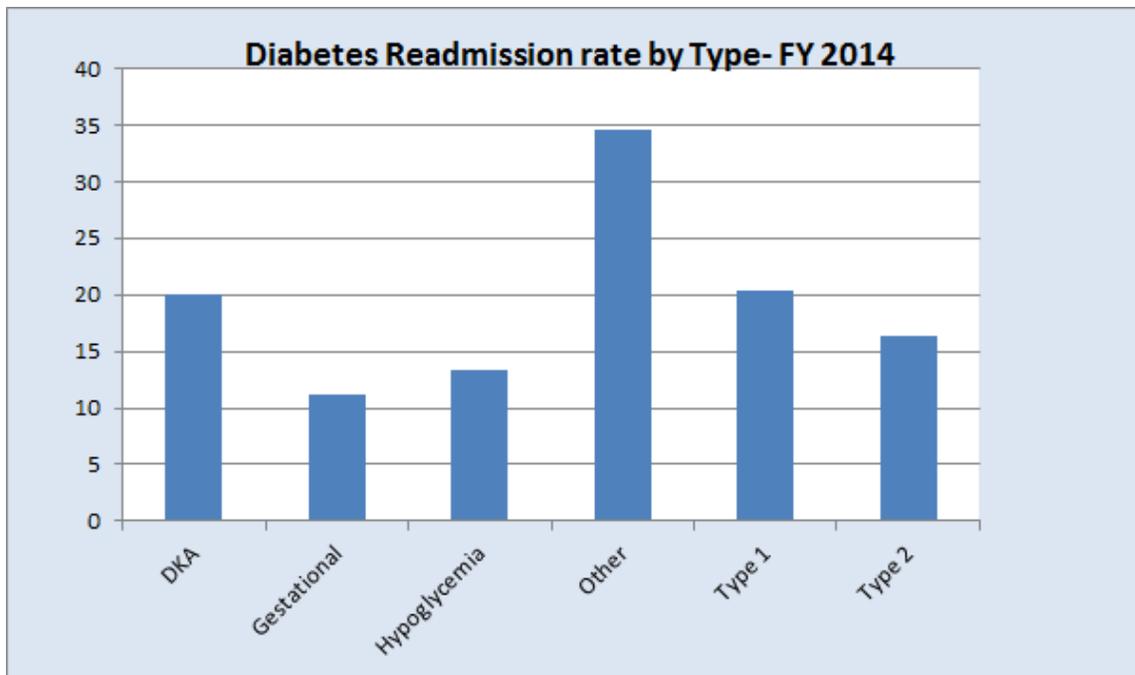


Figure 2. Diabetes Readmission Rates by Type, FY 2014.

Appendix C HCAPS Comparison

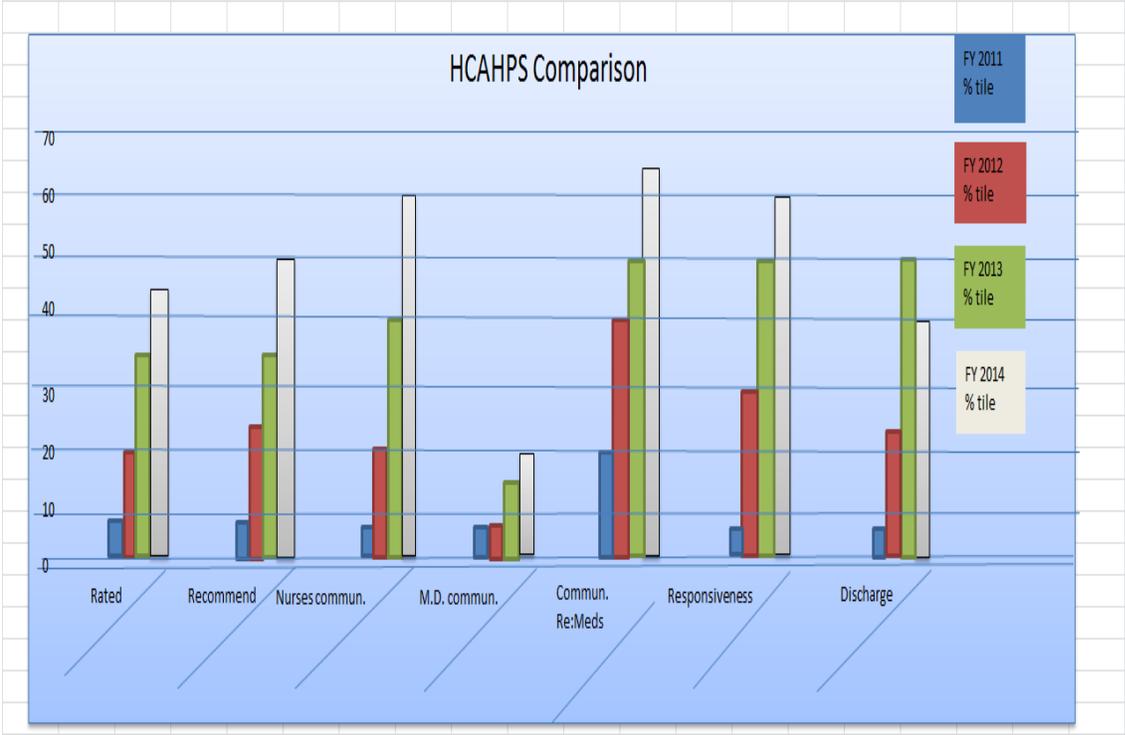


Figure 3. HCAHPS comparison at Henry Mayo Hospital from FY2011 to FY2014.

Appendix D Fishbone Diagram

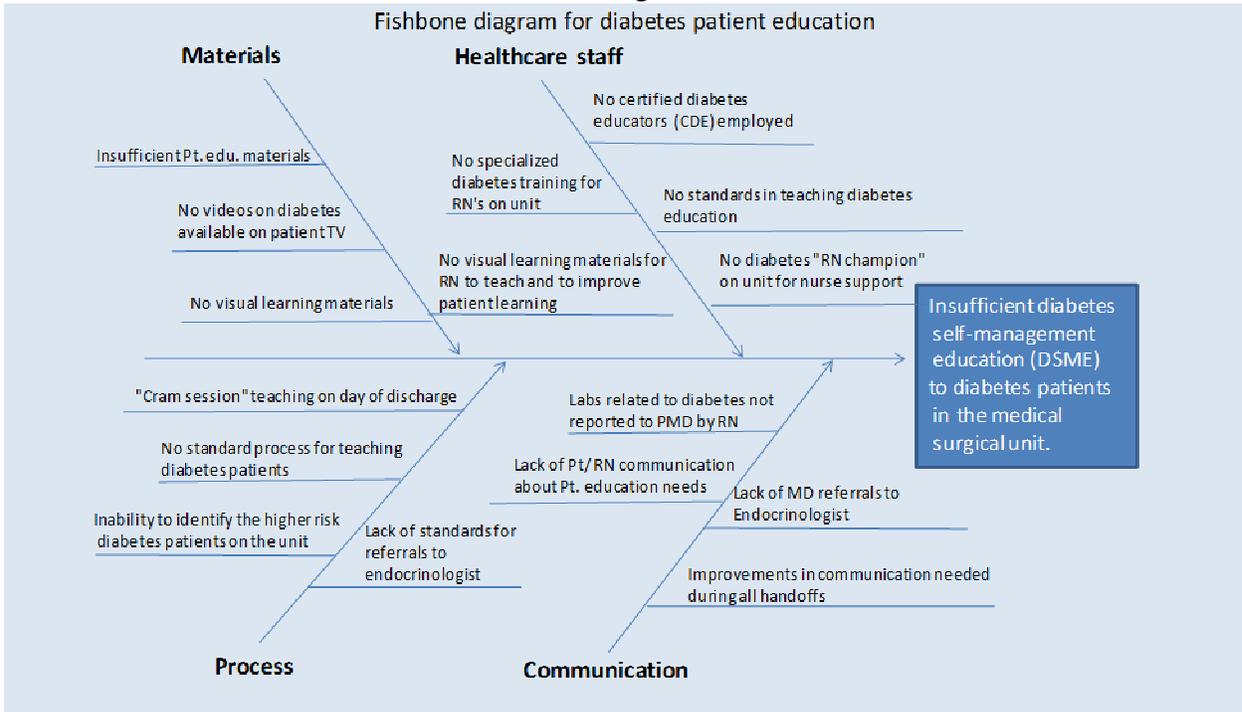


Figure 4. Fishbone diagram for global aim statement showing insufficient diabetes self-management education (DSME) for diabetes patients in the Medical Surgical Unit.

Appendix E SWOT Analysis

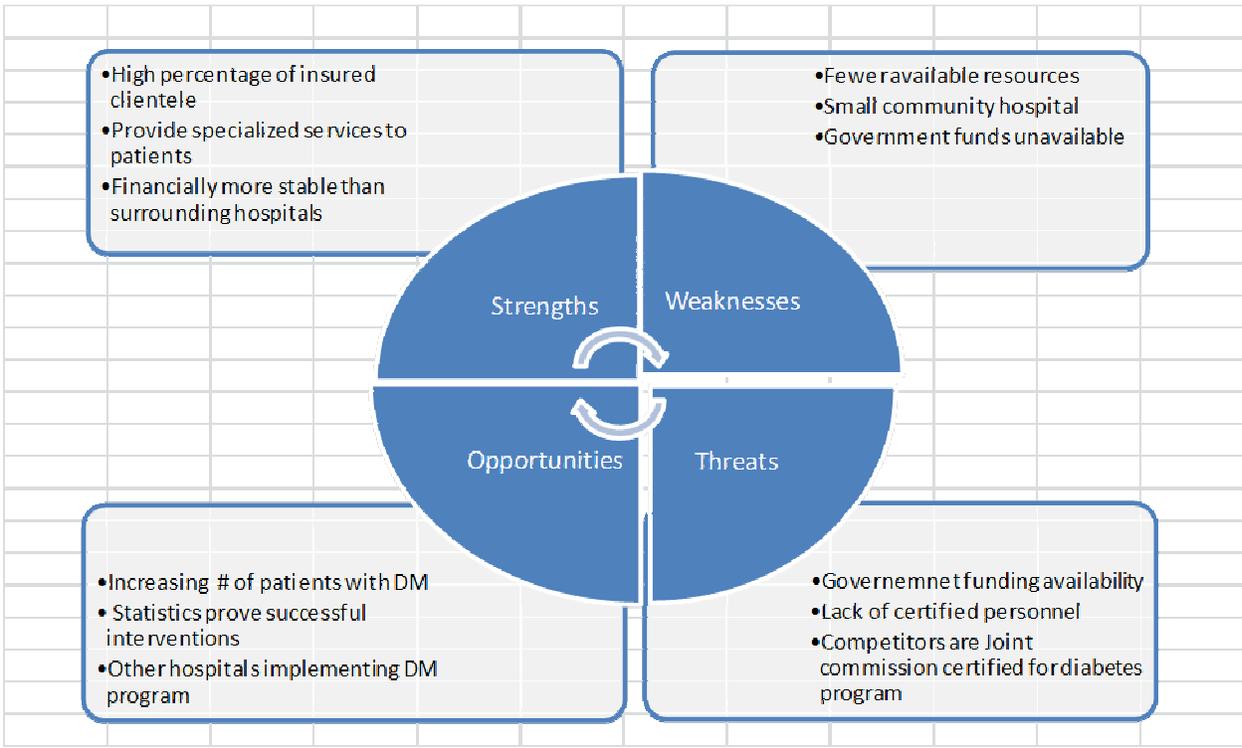


Figure 5. SWOT analysis of microsystem at Henry Mayo Newhall Hospital in 2015 related to diabetes program.

Appendix F
Total Cost–Benefit Analysis

Table 2
Cost–Benefit Analysis of Starting the Diabetes Program

Employee costs			
Student RN- 220 Clinical hours	8,904.00		
Salary RD CDE- FTE/Year	86,000.00		
Vacation	\$4,500		
Sick time	\$3,500		
Benefits	\$5,000		
Retirement	\$5,000		
	\$112,904		
Equipment costs			
Computerx2	\$1,250		
Desk	\$800		
Office supplies	\$650		
Educational costs			
Conferences	\$1,175		
Books	\$250		
Patient educational materials	\$4,700		
total cost	121,729		

Projected benefits and Costs

(obtain form the Diabetes educator review of literature study and calculated with hospital stats)

Improving inpatient education/decrease LOS	\$478,000		
Improving patient flow	0		
Improve patient satisfaction scores	0		
Reduce medical costs	\$94,010		
Prevention of complications	\$101,094		
Total	\$673,104		
Total Net benefit	551,375		

Note: Total cost benefit analysis of starting the diabetes program with the focus on improved diabetes self-management education to in-patients. The table represents a one year start-up cost benefit analysis. The net benefit totals a profit of \$121,729.00.

