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Evidence-based Change in Practice: Development and Implementation of Type II Diabetic Flow Sheet

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Doctor of Nursing Practice Project

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Section I: Acknowledgments

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Abstract

Ten percent of the National Health Service annual budget goes to treat complications from diabetes (Lancet, 2010). The American Diabetes Association® (ADA, 2013) estimated that diabetics in the United States incur $176 billion annually in direct medical costs for treatment with hospitalization being the main component of the expenditures. California has the largest population of diabetics and the highest annual cost at $27.6 billion (ADA, 2013). The Healthcare Cost and Utilization Project (HCUP, 2008) found that the average cost of hospitalization in 2008 for a patient with diabetes was $10,937 in contrast to $8,746 for a patient without diabetes. The Centers for Disease Control and Prevention (CDC, 2011) estimated that by 2050, one in three adults in the United States will develop type II diabetes. This DNP student was inspired by the Institute of Healthcare Improvement's (IHI) (IHI, 2013a) Triple Aim (see Appendix A). The IHI Triple Aim is a three dimensional improvement system that aims for better health care and lower cost for patients with complex needs (IHI, 2013a).This DNP student designed and took the lead as project manager to implement a quality improvement (QI) project to provide streamlined care to type II diabetic patients, saving healthcare provider's time, and enhancing coordination of care between all specialty disciplines caring for these patients. This change in practice project employed an evidence-based practice diabetic flow sheet (EBPDFS) for staff that care for the adult type II diabetic patients at Samaritan House clinics in California. The goal of this pilot project at San Mateo Samaritan House was to have staff accurately utilize the flow sheet. After pilot completion, a staff survey provided valuable feedback and recommendations for improvements necessary prior to expansion of the project to the Redwood City Samaritan House clinic. Key words: *diabetes, diabetic core measures, diabetes prevention, evidence-based practice, flow sheet, algorithms, decision trees.*

Section II: Introduction

Background Knowledge

Annually diabetics spend in excess of 3 million hospital days and over 15 million appointments with health care providers (Agency for Healthcare Research and Quality [AHQR], 2011a). Since 1980, the number of hospital patients discharged with type II diabetes has doubled (Department of Health and Human Services [DHHS], 2010). Type II diabetes accounts for 90 to 95 percent of the diabetes cases in the United States, is the seventh leading cause of death, and is a principle cause for hospitalization (AHRQ, 2011a; CDC, 2011; Healthy People 2020, 2013; National Heart Lung and Blood Institute [NHLBI], 2011). The estimated indirect and direct costs of type II diabetes is $174 billion a year (CDC, 2011). Complications of type II diabetes include hypertension, nervous system disease, blindness, heart disease, kidney disease, amputations, periodontal disease, and increased susceptibility to other illnesses (AHRQ; 2011b; CDC, 2011; National Institute of Health [NIH], 2013; World Health Organization [WHO], 2013).

The CDC (2011) stated that type II diabetes affects 8.3 percent of Americans, including 11.3 percent aged 20 years or older. Furthermore, 7 million people with type II diabetes are not aware that they have the disease and a small portion of those affected actually receive effective preventative care (CDC, 2011; Healthy People 2020, 2013; Knowler, et al., 2009; NCQA, 2013a). An estimated 4,300 to 9,600 annual deaths from diabetes in the United States could be prevented if every diabetic received quality health care (AHRQ, 2011b). Healthcare providers can reduce complications and hospitalizations of diabetics by controlling patients' glucose levels and blood pressure, as well as decreasing obesity (CDC, 2011; NIH, 2013). With timely and appropriate ambulatory care, it may be possible to prevent complications from this disease and reduce unnecessary resulting hospitalizations (AHRQ, 2011b).

Clinical practice guidelines are statements with recommendations to optimize treatment, promote prevention, and assist providers in giving the best possible care (IOM, 2011; Green, Gazamararian, Rask, and Druss, 2010). The National Committee for Quality Assurance (NCQA) in conjunction with the American Diabetes Association (ADA) have established clinical practice guidelines that can be incorporated into a flow sheet for primary care practitioners in order to assist them in managing, and sustaining the best outcomes for type II diabetics. A diabetic flow sheet supplies healthcare providers with a one page visible cue that summarizes where the client is at in their treatment and response to treatment, as well as documentation every time a client arrives for an appointment (White, 2000). Diabetic flow sheets have been found to be valuable tools in the charts of all diabetic patients both for the purpose of documenting past lab values, exam results, in addition to reminding providers to order upcoming labs and specialty exams (Cole, et al., 2009; Hahn, Ferrante, Crosson, Hudson, & Crabtree, 2008; Hempel, 1990; Lewis, Sobel, & DelPizzo, 2004; Lin, Hale, & Kirby, 2007; Moharram & Farahat, 2008; Patasi & Conway, 2008; Ruoff & Gray, 1999).

Local Problem

California has the largest number of undocumented immigrants in the country (Johnson & Hill, 2011). The Congressional Budget Office (CBO) (2014) estimated that the 54 million non-elderly uninsured unauthorized immigrants as of 2014 will rise to 57 million by 2024. Samaritan House clinics are the largest social service agencies in San Mateo County and provide full health services to undocumented and uninsured individuals in San Mateo County (San Mateo County Health Department, 2009). With the passing of the Affordable Care Act (ACA) in 2013,

known in California as *Covered California*, millions of undocumented immigrants will remain uninsured as the ACA does not cover them (Howland, Pegany, Coleman, & Connolly, 2014).

Samaritan House has already established itself as a freestanding non-profit organization that emphasizes dignity and respect with the aim to leverage community resources to meet the needs of underserved people in the community at no cost to the client (Samaritan House, 2013a). Samaritan House clinics have attempted to fill the gap in healthcare access by serving approximately 9,000 patients annually, which represents about 3,500 active patients between San Mateo and Redwood City Samaritan House clinics (Samaritan House, 2013a). As of 2014, the administrators at Samaritan House estimate that their staff provides health care for a total of 400 type II diabetic patients (200 at each clinic). Samaritan House currently does not have electronic medical records (EMR) and is not yet able to financially move in that direction. Therefore there are no electronic reminders for staff in regards to making sure quality core measures related to type II diabetes are being maintained. A one-page EBPDFS would serve as a quick reference for staff that are caring for type II diabetic patients.

Samaritan House's mission is to preserve dignity, promote self-sufficiency, and provide hope and supportive services to all members of its community (Samaritan House, 2013a). This mission aligns well with the vision and mission of the University of San Francisco (USF) School of Nursing and Health Professions (see Appendix B), and its core values (see Appendix C). Doctor of Nursing Practice (DNP) students at USF are trained to be well educated advanced practice nurses that provide a moral compass to transform healthcare. DNP students are taught to be authentic transformation leaders in healthcare and to serve "human kind" with particular attention to social justice issues in healthcare. An advanced practice nurse practitioner (NP) who volunteers at Samaritan House is in an ideal position to improve healthcare in the community

through a successful evidence-based change of practice intervention that would hold promise to expand to a second Samaritan House Clinic in Redwood City and other county clinics throughout the State of California as well as across the United States. This intervention could potentially be adopted by many health care agencies and impact healthcare at a state and later a national level, allowing all type II diabetics in the United States to gain access to quality healthcare.

Intended Improvement

This DNP student was prompted to streamline the documentation of the type II diabetes patients out of frustration from personal experience in observing fellow healthcare providers over the years spending increasingly more time going through pages of a patient's paper chart prior to appointments to understand where the patient was in their treatment. Only after meeting with administration was it realized the intended quality improvement (QI) project would not only benefit the patients but could also increase staff satisfaction and possibly lead to increased funding if NCQA recognition was attained.

Prior to the implementation of the EBPDFS, Samaritan House Clinics did not have a flow sheet or organized system to track the adult type II diabetic patients. Chart audits conducted by the DNP student in January 2014, demonstrated increase fragmentation of care over time and lack of performance in NCQA guidelines specific to three diabetic core measures: documentation of body mass index/obesity, blood pressure control, and hemoglobin (HA1c).

The overall aim of this project was to pilot an EBPDFS at San Mateo Samaritan House clinic that will be evaluated and if found effective, expanded to the Redwood City Clinic. The goal of this project was to streamline care for the uninsured type II diabetic patients at Samaritan House and increase healthcare providers' satisfaction by decreasing time spent going through patients' charts to assess trends in core measures or when annual specialty exams need to be

scheduled. Specifically the objective of this pilot project was that 50% of the flow sheets would be accurately completed by staff. The question this test of change project is trying to answer is whether an EBPDFS will be advantageous in streamlining care, saving healthcare providers' time, and enhance documentation, coordination and satisfaction when providing care to type II diabetic patients.

Review of Evidence

A comprehensive search for evidence was conducted at Stanford University's Lane Medical Library using PubMed, CINAHL, Cochrane, Medline, Scopus, and DARE. Search terms included *diabetes, type II diabetes, diabetic core measures, diabetes prevention, QI, flow sheets, algorithms, decision trees, and continuity of care.* The search was limited to publications from 1990 to the present, English only, but included evidence outside of nursing. Although the search yielded many articles however twelve articles were chosen for this review of evidence based on quality and rigor. The strength and quality of the evidence was then appraised. The strength of the evidence was rated using the hierarchy of evidence developed by Melnyk and Fineout-Overholt (2011) and the quality of the evidence was rated using the Johns Hopkins Nursing Evidence-Based Practice appraisal summary tool (JHNEBP) Dearholt and Dang (2012). Melnyk and Fineout-Overholt describe seven levels for strength of evidence. Level I is the strongest evidence which includes systematic reviews and random control trails whereas level VII is the weakest and includes expert or group opinions/comments (see Appendix D). The JHNEBP rates the quality of the evidence from A to C: A= high quality, consistent results; B= good quality, reasonable consistent results; C= Low quality, with major flaws, inconsistent results. This information was then summarized in an evaluation table (see Appendix E)

Benefits of nurses in primary care. Prior to the Institute of Medicine (IOM) report (IOM, 2010) that called for nurses to expand their role to the fullest extent of their license, Laurant et al. (2005) conducted a systematic review in which 4,253 articles from 1966 to 2002 were consolidated down to 25 articles and 16 studies that compared nurses to physicians in process care outcomes. Their review demonstrated that nurses, clinical nurse specialists, and NPs can provide similar high quality outcomes in the primary care setting compared to physicians in the caring of chronic disease management. Furthermore, it found that when treatment was lead by nurses there was increased satisfaction by patients.

Ohman-Strickland et al. (2008) conducted a cross-sectional study using 46 family medicine practice sites on the East Coast and concluded that family practices that employed NPs met diabetic core measures better than physician only practices in assessing HA1c levels (66 percent vs. 37 percent) and lipid levels (80 percent vs. 37 percent) (P < or = .007 for each).

Shaw et al. (2014) provided a systematic review of almost 3,000 studies over a duration of thirty-five years evaluating nurse managed protocols. They determined that in the outpatient setting nurse managed protocols, compared to usual care, had a positive impact on the management of chronic diseases including diabetes. These evidence-based practice studies demonstrate the value of nurses and/or advanced practice nurses in the primary care setting.

Diabetic flow sheets. Much of the literature showed that diabetic flow sheets can improve adherence to guidelines and enhance quality of care for type II diabetics (Bradley, Oberg, Calabrese & Standish, 2007; Cole et al. 2008; Hahn, et al. 2008; Hempel, 1990***;*** Lewis, et al. 2004; Lin, Hale, & Kirby, 2007; Moharram & Farahat, 2008; Ohman-Strickland et al. 2008; Pastel, Lui, Homa, Bradley, & Batalden, 2009; Patasi & Conway, 2008; Ruoff & Gray, 1999; Shaw, et al. 2014; White, 2000; Willens, Cripps, Wilson, Wolff, & Rothman, 2011). These

studies varied in size from a study by Lin et al. (2007) with a small sample size (N = 33, intervention group and N= 35 control group) to a study by Hahn et al. (2008) with a very large randomized control trial (RCT) at 54 sites with 1,016 type II diabetics. Most of these studies used evidence-based guidelines and flow sheets, such as the National Diabetes Advisory Board (NDAB) and National Diabetes Guidelines (Hahn, et al., 2008; Hempel, 1990), ADA (Cole, et al., 2009; Ohman-Strickland, et al., 2008; Ruoff & Gray, 1999), and Canadian diabetic guidelines (Moharram, & Farahat, 2008; Patasi & Conway, 2008). White (2000) developed his own flow sheet with the assistance of providers. Sites in these studies varied from community-based ambulatory care (Hempel, 1990; Patasi & Conway, 2008; Ruoff & Gray, 1990) to family medicine and primary care (Hahn, et al., 2008; Lin et al., 2007; Ohman-Strickland, et al., 2008; Patasi & Conway 2008). Some studies were conducted internationally, with one in Saudi Arabia (Moharram & Farahat, 2008), and two in Canada (Lin, et al., 2007; Patasi & Conway, 2008) while the others were within the United States, most were on the east coast.

This review of evidence revealed strengths and limitation of the studies evaluating the benefits of a diabetic flow sheet for type II diabetics. Most of the studies demonstrated improvement in documentation, education, and/or increased adherence in meeting quality control adult type II diabetic measures (Hahn, et al., 2008; Lin, et al., 2007; Moharram, & Farahat, 2008; Ohman- Strickland et al., 2008; Patasi & Conway 2008; Pastel, 2009; Willens et al., 2011; Hempel et al., 1990) and improved documentation of education and specialty referrals (Ruoff & Gray, 1999)

Diabetic flow sheets and patient outcomes. Lewis et al. (2004) and Hahn et al. (2008) were some of the first researchers to assess the relationship between the use of a diabetic flow sheet and diabetic patient outcomes in primary care. Lewis et al. randomly assigned 48

participating Delaware primary care practices to an intervention group and a usual care control group. This study that was done in two phases (phone surveys followed by chart reviews). The intervention group was given feedback on rates of compliance in regards to diabetic outcomes and received education on quality improvement from the Delaware Health Commission (HCC) on the use of the flow sheet and their ability to meet the diabetic practice guidelines during the two year project. Patients with flow sheets were 1.5 to 3 times more likely to have key tests done in a timely manner (HA1c, lipids, urinalysis, foot and eye exams). Hahn et al. (2008) confirmed the work of Lewis et al. (2004) through retrospective review of more than 1,000 medical records and demonstrated that the use of a flow sheet that followed the National Diabetes Guidelines was associated with a higher mean guideline adherence score for assessment (55.38 vs. 50.13, P =.02) and treatment (79.59 vs. 74.71, P=.004), but not for diabetes outcomes (e.g. HA1c level, blood pressure, and cholesterol level). Authors reminded readers that not all of the charts had the flow sheets and furthermore advise exploring physician and patient variables that affect adherence. The authors concluded that a diabetic flow sheet can promote better adherence when it comes to assessment and treatment of diabetes and increase the chances of adherence to guidelines. They reported that by creating structure care processes for assessment and treatment of diabetes, primary care physicians and NPs working in teams can improve diabetic patient care and clinical outcomes (Willens et al., 2011).

Assessing BMI of diabetic patients. Klabunde et al. (2014) surveyed 1,740 primary care physicians via questionnaires. They discovered (with a 55.5 percent response rate) that 80 percent of the responding physicians reported having access to information and resources on the importance of exercise and nutrition in their offices nonetheless only 26 percent reported assessing BMI. The BMI (see Appendix F) provides more information than pounds; it defines if

the patient's weight is normal, overweight, or obese. This scenario mirrors the setting at Samaritan House with only 54 percent of patients having documented BMI during the January 2014 audits. Oftentimes, healthcare providers documented weight but without EMR, the increased time it would take to go through a chart and locate a documented height left many charts with BMI not documented. Successful implementation of this EBPDFS proposed in this project would resolve this issue.

Evidence-Based appraisal tools. DynaMed[1] is a clinical reference site that provides the latest evidence-based point of care data. Dynamed is used by healthcare providers as a resource for clinical reference tools at point of care. The Dynamed staff evaluate hundreds of medical journals a day and evaluate their relevance and scientific validity in order for conclusions to represent the best unbiased evidence (Dynamed, 2014).

A search on DynaMed found guidelines specific for type II diabetics that addressed the quality gaps in diabetic care that are available for clinic implementation. Many of the guidelines are familiar to healthcare providers, such as the AHRQ (2011a), American Association of Clinical Endocrinologists (AACE) (2011), ADA (2013), University of Michigan Health System (UMHS) (2014), Harvard Medical School affiliate Joslin Diabetes Center (JDC) (2012), New York State Department of Health (NYDH) (2012), International Diabetes Federation (IDF) (2012), and the NCQA (2013a). There were slight variances in blood pressure (BP) goals, most recommending a BP of less than 130/80, except for the ADA (2013), which recommended that blood pressure be less than 140/80. Healthy People 2020 (2013) and NYDH (2012) advised an annual dental exam. Additional quality measures such as alcohol intake, smoking status, and

[1] https://dynamed.ebscohost.com

physical activity were addressed in some but not all of the guidelines. Through open dialog with Samaritan House clinic administration, the NCQA diabetes guidelines were chosen because they ensured established quality control diabetic measures by the ADA and offered the ability to apply for national certification in the future.

Conceptual/Theoretical Framework

Conceptual theories and models provide structure and guidance to a change of practice project. The Donabedian model of structure, process, and outcome in addition to Rogers' theory of diffusion of innovations served as the framework for this project. The Donabedian model was chosen for this project not only because of its focus on quality care but also because Samaritan House clinic was able to demonstrate an outcome (proper use of the flow sheet) that was linked with processes (education and in-servicing of multidisciplinary staff members). Rogers's theory of innovation was useful in guiding the interactions this DNP student had with the various members of the multidisciplinary team that lead to a successful pilot project.

The Donabedian Model. The Donabedian model is a conceptual model that provides a framework for examining healthcare services and evaluating quality of care that can be applied in many settings (Burns, 1995; Donabedian, 1966; McDonald et al., 2007). The Donabedian model uses structure, process, and outcome as standards to guide and monitor the progress of a QI project (Naranjo & Kaimal, 2011). All three standards are necessary for effective QI.

The first standard of the Donabedian model, structure, includes both the physical and organizational structures of the setting. The physical structure of Samaritan House is that it is located close to public transportation (i.e. Sam Trans bus and Cal train), has wheelchair access, and is a single level building. The clinic has four exam rooms as well as ophthalmic and dental

rooms. The administration building is only blocks away from the San Mateo clinic therefore management at a moment's notice can quickly arrive at the San Mateo clinic if necessary. The organizational structure is that Samaritan House has a community-based board of directors (22 members) and strong executive leadership staff including five program directors: program services, program operations, finance, program development, and human resources. Administration interacts with the multidisciplinary team members who volunteer their services for personal and passionate reasons that support the Samaritan House vision. The vision of Samaritan House is to provide a community of hope through neighbors helping neighbors and to practice dignity and respect in all actions (Samaritan House, 2013a). This evidence-based change in practice flow sheet fits with Samaritan Houses guiding value to implement creative solutions (an EBPDFS) for the community's unmet needs (type II diabetic patients).

The second standard of the Donabedian model, process, involves the implementation of the EBPDFS. The importance of the implementation phase and its significance to a project's success cannot be understated (Harris, Roussel, Walters, & Dearman, 2011). In this case, the introduction of an EBPDFS impacted and streamlined type II diabetic care plus increased multidisciplinary team members' awareness of the type II diabetic patients' progress. The EBPDFS provided guidelines for annual checks and may possibly increase collaboration of multidisciplinary team members regardless of the specialty provider that the type II diabetic patient is seeing. The process offered staff the opportunity to provide the DNP student feedback during the introduction of the change in practice flow sheet, throughout the implementation, and upon completion of this QI project.

Initial steps in the process included obtaining the backing of primary and secondary stakeholders. The DNP student first met with the Samaritan House director of program

operations to discuss the results of chart audits conducted in January 2014 and an evidence-based change in practice flow sheet, which was then presented to the multidisciplinary team members during the April 2014 staff meeting. There was initial resistance, and consequently the DNP student allowed open dialog in order to provide a sense of ownership in the EBPDFS for the stakeholders.

The third standard of the Donabedian model, outcome, was reviewed. There was always the risk that staff might initially forget to document or need reminders to accept the additional work required of them to use the flow sheet. Monthly chart reviews allowed the DNP student to promptly address any issues that arose regarding incorrect or deficient documentation on the flow sheet. Additionally post implementation staff satisfaction surveys results gave the DNP student staff feedback in regards to the EBPDFS.

Rogers' Diffusion of Innovations Theory. Rogers' diffusion of innovations theory (Haider & Krep, 2004; Rogers, 2003) has contributed to a greater understanding of behavior change including rates of adoption of innovations in this QI project. Rogers' theory covers a five-step process and uses a bell curve to demonstrate how change takes place in an organization and the importance of staff support for the success of a project. In Rogers' theory, people in different parts of the curve are named (from left to right): innovators, early adopters, early majority, late majority and laggards (see Appendix G).

In this QI project, the DNP student was the innovator at the start of the curve. The DNP student saw the EBPDFS as an innovative opportunity to positively influence and streamline the care of the adult type II diabetic patients at Samaritan House. Early adopters are individuals who are exceedingly powerful in the organization and can be persuasive of others (Melnyk & Fineout-Overholt, 2011). In this project, the early adopters were the executive leaders,

specifically the director of program operations, who were an asset and resource for the DNP student. The director of program operations was looked upon as a leader at Samaritan House and had already established positive long-term relationships with the staff at both clinics. Furthermore, she demonstrated support of the DNP student's change in practice QI project by providing a letter of support to the University of San Francisco (see Appendix H) and facilitated the initial presentation of the QI project at the April 2014 staff meeting. After the staff meeting, the multidisciplinary team members offered feedback, collaborated, and the early majority (the clinical advisory committee) led the late majority (the registered nurses, nursing assistants, NPs, physicians, and front-line point of care staff). Finally the laggards, mostly staff that volunteer once a month and had less of a connection with the daily/weekly routine of the clinic, eventually came on board, but not until after the EBDFS was in all the type II diabetic charts in San Mateo and used in daily practice.

Section III: Methods

Ethical Issues

The Belmont Report (1979) explained three ethical principles one must adhere to when carrying out clinical research: respect for person, beneficence, and justice. As more nurses become involved in QI it is difficult to determine when an activity is a QI project not requiring institutional review board (IRB) approval (Cacchione, 2011; McNett & Lawry, 2009**).** Differentiating between research and rigorous QI projects can be complicated (Arndt & Netch, 2012; McNett & Lawry 2009). As DNP programs flourish, partnerships with IRBs are important in order to determine which DNP projects are QI and which are research. If a DNP project is deemed to be research, than it is important that it be reviewed by the IRB in order to protect human subjects (Szanton, Taylor, & Terhaar, 2013).

Arndt and Netch (2012) and Cosco, Knopp, and Milke (2007) explained how QI is different from research in terms of intention, burden, risk, and purpose. QI projects intend to increase performance and the efficacy of processes at a local or internal level as part of ongoing care. On the contrary, research projects intend to be generalizable, intended for the entire scientific community in order to benefit a larger population, generate knowledge, and establish fact, independent of routine care.

QI is defined as a systematic, data-guided activity that produces immediate improvement in healthcare delivery by means of reducing a quality gap (Harris, et al., 2011). The purpose of this QI project was not to answer a research question but rather to implement a QI pilot EBPDFS project that would be evaluated and expanded to Redwood City Samaritan House clinic. The goal of this QI project was to streamline care for type II diabetics and increase staff satisfaction in caring for those patients through proper use of the EBPDFS.

The University of San Francisco School of Nursing and Health Professionals (USFSONHP) requires DNP students to successfully complete three Health and Human Services online Human Subjects Assurance training modules and print certificates upon completion so that students have demonstrated knowledge of what constitutes research and how human subjects must be protected in research studies (see Appendix I). These modules were completed by the DNP student in July 2013. The project approval statement of determination was submitted Spring 2014 (see Appendix J) as a QI project because it met all the guidelines for an evidence-based change in practice project and did not meet the definition of human subjects research. Therefore, the project did not require IRB approval. Permission to proceed was obtained through Dr. Karen Van Leuven and other DNP committee members. No further changes were made to the project proposal.

Health care providers are obligated to assess conflict of interest prior to implementing a study (Parvizi, Tarity, Conner, & Smith, 2007). Perceived and/or actual conflict of interest was evaluated and reflected upon by this DNP student and it was determined that there was no financial incentive, or bonus, for completing the project at Samaritan House, and since this DNP student volunteered her services as a NP in their clinic, there was no personal, actual, or potential conflict of interest in leading this QI project.

Approval to proceed with the project did not absolve the DNP student of any further ethical responsibility. Strategies were implemented to maintain an ethical framework through biweekly correspondence (phone call and emailed practicum logs) with my DNP Chair at USF, Dr. Buccheri, that included making sure an Memorandum of Understanding (MOU) was in place between Samaritan House and USF and documenting days and times of practicum hours, weekly activities, goals, objectives, learning activities, and communication with clinic administration and team members. Dr. Buccheri provided an experienced eye for monitoring and supervising the project and offered advice and recommendations in order to maintain ethical standards and not cross over the line into research. To maintain equitable and just care, all of the adult type II diabetic clients' charts at San Mateo Samaritan House clinic would receive the EBPDFS. The flow sheet imparted no health risk to patients, adhering to the ethical principal of non-malfeasance. Additionally, the privacy laws outlined in the Health Insurance Portability and Accountability Act related to oral and electronic forms of communication were maintained (CDC, 2003).

Setting

History of Samaritan House. San Mateo Samaritan House was started in 1974 by two physicians from Peninsula Hospital in Burlingame who became aware of the number of people in

San Mateo County who did not have proper access to healthcare. Their converted office space clinic was originally open one night a week. However, by the end of the first year, they had to find a medical office space and recruit physicians to volunteer to meet the increased demand. The San Mateo clinic is funded by Peninsula Healthcare District foundations, corporate sponsors, and individual gifts.

The Redwood City clinic opened in 2001 at the request of the Sequoia Hospital District to help reduce the high volume of emergency room visits. The Redwood City clinic is funded primarily by the Sequoia Healthcare District with additional contributions from foundations, corporate sponsors, and individual gifts.

Present setting. Both San Mateo and Redwood City Samaritan House clinics are part of the largest social service agency in San Mateo County. They are open Monday through Friday, 8 a.m. to 5 p.m., offering specialty services (i.e., gynecology, dermatology, diabetic care, endocrinology, ophthalmology, podiatry, and nutritional counseling). The Redwood City clinic is open every other Wednesday until 9 p.m., and the San Mateo clinic is open every Monday until 9 p.m. Volunteers work as translators, nurses, nursing assistants, NPs, and physicians. Most of the volunteer staff are either retired, currently in practice, and/or volunteer their services in their spare time. Volunteers are recruited through ads in medical staff newsletters at local area hospitals, the Samaritan House website, and through its current physicians reaching out to the communities where they practice.

The two clinics employ eight staff members and with volunteers, healthcare providers offer primary and specialty medical and dental services. Each clinic is run with the assistance of a paid half-time medical director and dental director (10 hours a week). In addition, the San

Mateo clinic has a paid full-time medical assistant, paid full-time clinic manager, and paid part-time breast care clinic coordinator. The Redwood City clinic has a paid full-time clinic coordinator and paid full-time medical assistant. Clients are referred from social service agencies for care, as well as word of mouth in the community. For an appointment in these free clinics, patients must have an initial visit with either the Case Manager or Medical clinic coordinator to confirm they are not candidates for Medi-Cal or Covered California.

Both clinics are located in areas with easy access to the communities they serve, near various means of public transportation (Sam Trans and Cal train). The San Mateo Clinic is a few blocks away from the San Mateo County Hospital. Samaritan House has partnerships with local laboratories for negotiated services. For non-urgent surgeries, "Operation Access" services are facilitated for the patients by the providers at Samaritan House. Operation Access is a volunteer service that provides outpatient surgeries for the uninsured. Physicians and affiliated medical centers donate their time and operating room space in order for people in the community to receive needed surgical care free of charge.

There is an onsite pharmacy that covers approximately 90 percent of the prescription needs, but there are still barriers in getting some prescriptions. If the pharmacy does not have the medication requested, staff can appeal for Samaritan House to purchase a specific medication. If the medication is too expensive or not accessible, providers have utilized the Good Rx website[2] to save clients up to 80 percent on prescription costs. This website includes a cost analysis of the local pharmacies and gives the least expensive purchase price and coupons for additional client savings. Samaritan House pharmacy maintains quality control measures through two volunteer

[2] http://wwwhttp://www.goodrx.com/

licensed pharmacists who monitor the volume of medications being used or needed, as well as expiration dates.

Samaritan House has developed a pattern that has helped to make it successful in the community. Most of the staff are volunteers and as such, they are flexible, supportive and try to maintain a positive work environment with their peers. Samaritan House administration appears to be a tightly coupled system while the front-line daily activities seem loosely coupled. The concept of coupling in an organization was first written by American organizational theorist Karl Weick in 1976. Nelson, Batalden, and Godfrey (2007) clarified Weick's concept and explained how tight and loose coupling differ in system characteristics. For loose coupling, the system is partially self governing, the system shifts from structure to process, has many leaders, sometimes coordination and control can be problematic, and stability is based on individuals and subgroups. In tight coupling, the system is dependent, has few leaders, individuals and subgroups maintain stable coalitions, boundaries are clear, and there is a focus on structure (Nelson et al., 2007).

Samaritan House has clearly defined leaders (five) on the executive board (chief executive officer, a director of programs and services, a director of programs operations, a director of finance, and a director of human resources) that maintain the structure, boundaries, and rules of the organization through tight coupling. Everyday clinic work consists mostly of volunteers and although they have no financial incentive to be there, they take responsibility for their work and actions. Shifts run fluidly, professional boundaries are maintained and multidisciplinary team members are almost an open subgroup system and could be described as loose coupling. Team members are autonomous but work together. They are flexible enough that if one staff member is busy, they can take on another role as needed to support a successful system. For example if a nursing assistant is busy setting up a patient, the NP or physician will

jump in and escort the next patient to the intake station, take vital signs, height, and weight, and set the patient up for the exam. This loose coupling subgroup (front line staff/primary care providers) are only successful because administration has a tight coupling style in regards to Samaritan Houses core values of caring for those in need that trickles down to ensure compliance in quality measures for the patients within the organization.

System changes that need to be addressed are typically brought up at monthly staff meetings. Staff can notify administration of agenda items in person or via email. Administration interfaces often with front-line staff. There is a genuine caring for all the volunteers because without them, the success of the clinics would be questionable. Once a year, Samaritan House has a community appreciation event for all friends and volunteers of the Samaritan House as a way to thank them for their dedication and acknowledge their contributions.

Planning the Intervention

With Samaritan Houses director of program operations permission, this DNP student began the project by means of comprehensive retrospective chart audits that revealed concerning gaps in the clinic's ability to meet three diabetic core measures (BMI/obesity, hypertension, and poor HA1c control). This DNP student presented a review of EBPDFSs and described the benefits of implementation in order to promote safe, efficient, and timely care for the type II diabetics. Through collaboration with the executive leadership and key stakeholders, the administration chose the NCQA Type II Diabetic Guidelines (2012a) (Appendix K) because the administration believed these guidelines fit the clinic needs best and would allow for national recognition in the future. This QI project offered potential long-term economic benefits to improve the financial deficit of San Mateo County by decreasing hospitalization and emergency room use by the uninsured type II diabetic patients in San Mateo County.

Failure mode and effects analysis. This DNP student was proactive by utilizing the IHI Failure Mode and Effects Analysis (FMEA) to assess and prioritize the risks of potential failures in the diabetic flow sheet project (see Appendix L) prior to implementation. Each failure mode were rated on a scale of one to 10 as to likelihood of occurrence, detection, and severity. The lowest calculated/multiplied score would be one, and the highest score would be 1,000. This DNP student assigned a risk priority number with explanations as to what could go wrong, why it might happen, and the consequences of each. This DNP student felt that the failure mode that should be at the top of the list was not having the flow sheet in the front of all the adult type II diabetic charts. Having the EBPDFS in the chart was essential for the project's success. All the other potential failures (related to use of the flow sheet or proper use of flow sheet) would mean nothing if the EBPDFS was not in the chart. This first failure mode assessment scored a 50 in risk priority number (RPN). The RPN value tells how likely the failure mode will occur, be detected, and the severity if the failure should occur. The RPN of 50 demonstrated that if a failure occurred, it would be noticed early and resolved immediately, thus indication that the DNP student had an excellent process in place for early detection and intervention.

The other two failure modes (i.e., staff do not use the EBPDFS and staff do not use the EBPDFS properly) were more difficult to detect, so they received a higher score. Consultation via email on July 20, 2014 with IHI executive director Frank Federico provided this DNP student guidance to focus on steps that had the highest points and to implement interventions to decrease this score. Having this foresight increased awareness of these risks prior to the launch. This DNP student realized that if there were additional interventions related to in-servicing and educating staff on the EBPDFS, there would be a positive impact on decreasing the likelihood of

occurrence and along with monthly audits, an increase in detection of proper use of EBPDFS by staff.

Staff and customer activities. The front-line staff at Samaritan House include primary care providers (MD/NP), unit secretaries, translators, registered nurses, and nursing assistant staff who understand their purpose, role, and contribution on any given day at the clinic. The typical activity processes of the unit secretaries are making appointments, pulling charts, and checking in patients as they arrive at the clinic. The nursing staff's regular activities involve reviewing lab work, notifying the provider of abnormal lab work, escorting patients from the waiting room to the vital sign station to obtain blood pressure, pulse, temperature, height, and weight, and then documenting these values on the history and physical sheet. For primary care providers, clients' appointments and the intake process is supported by allowing adequate time (30 minutes minimum) to meet with the clients.

The unit secretaries were in-serviced during summer 2014 on the location of the flow sheet, how to make copies, and where to place it in the chart when the chart was pulled the day before an appointment. The nursing staff were in-serviced one on one by this DNP student on where to find the BMI key and/or dial device to calculate an accurate BMI and where to document this and other information on the EBPDFS. With the addition of the flow sheet, front-line staff had additional steps (i.e., assessing and documenting BMI) in their regularly scheduled activities (height, weight and vital signs) when checking in patients, but it was aligned with their usual workflow.

This DNP student's role in this project was to serve as project manager, leading the development of this change in practice project with support from the medical director and clinic

administration. The goal was that 50 percent of the EBPDFS would be accurately completed by staff, which would streamline and enhance coordination of care for the type II diabetic population at Samaritan House.

Cost and benefit. Planning and piloting the intervention was of no cost to Samaritan House because this DNP student used practicum hours for all of her time spent on the project. The budget presents the direct and indirect costs to sustain the project (see Appendix M). Indirect costs of making copies and printing the EBPDFS were small because paper and the office copier were already in the clinic overhead budget. Additionally since the flow sheet extends over years the price of printing the flow sheet would not be an annual cost. Telephone, lighting, rent, and parking were already covered by the clinic as well. The direct costs of orienting and in-servicing staff did not affect the clinic budget because it was completed during this DNP student's practicum hours. The estimated cost to sustain the project through 2015 and 2016 including salary is provided in Appendix M.

Kopcha (2011) conducted an earnings survey of more than 5,000 NPs and physician assistants across the nation and found that depending on specialty area of practice, years of experience, and gender, the average wages ranged from $75,556 per year in women's health specialty to $132,206 per year in dermatology. A recent national online survey of NP's (N= 2,889) and physician assistants (N= 951) demonstrated a notable increase in earnings for full time NPs to $98,817 and physician assistance to $107,268 (Wolfgang, 2014).

In order to sustain this QI project it would be important to look into funding a .2 full-time equivalent (FTE) NP position (one day a week diabetic clinic) upon pilot completion. The Samaritan House clinics are located between two of the most overpriced cities in the United

States, San Jose and San Francisco (Carlyle, 2013). In order to recruit and retain an outstanding part-time NP, a pay scale would be selected on the high end at $74.00/hour (compared to Wolfgang NP salary of $47.50 /hour and physician assistance $51.57 /hour). This superior wage was chosen due to the geographic cost of living, as well as this position would not include healthcare benefits and retirement. The annual cost of $30,784 for 2015 and $31,707 for 2016 is relatively low when you compare it with the average cost for one person to spend one day in the hospital in San Mateo County is $14,238 (The Healthy Community Collaborative of San Mateo County, 2011).

Responsibility/Communication Matrix. A Responsibility and Communication Matrix (see Appendix N) details the scope of various team members' roles as far as what they were responsible, assisted, supported or informed during the project. Initial communication and responsibilities were performed by this DNP student with the support of the director of program operations. As the project progressed, there was increased communication, collaboration, and delegation of responsibilities among all multidisciplinary team members (this DNP student, administration, clinical advisory committee, and front-line staff).

Implementation of the Project

Key members involved in the decision-making and rollout were this DNP student and the director of program operations. This DNP student met with the director of program operations to present the gap analysis and EBPDFS. The DNP student received input and feedback from staff and revised the format of the flow sheet prior to launch date. Maintaining the timelines was challenging on occasion and resulted in additional time spent trying to implement the project. As project manager, this DNP student served as the point person for questions and concerns. The

director of program operations assured herself to be available to this DNP student, helped steer staff at board meetings, and supported clear communication before and during the project.

This DNP student has been a Samaritan House volunteer for more than 10 years therefore acting as project manager was an easy transition and allowed the student to build on the positive relationships that had already been developed with multidisciplinary team members. Even though one-on-one communication seems informal, it allowed feedback during regular clinic hours, was effective in attaining support of an interested front-line champion, and offered valuable feedback from multidisciplinary team members.

The staff goals for this project were to educate healthcare providers on how to use and implement the EBPDFS and to enable staff to make appropriate and timely referrals via the EBPDFS. The objectives for staff during this project were to document 50 percent of the time on the EBPDFS with each patient appointment beginning in September 2014, and to provide feedback and improvement suggestions on the EBPDFS two months post implementation.

Planning the Study of the Intervention

Quality Improvement design. Using the Plan Do Study Act (PDSA) QI design, each of the four phases of the project were defined to include timelines and resources (see Appendix O). This DNP student worked collaboratively with the USF School of Nursing and Health Profession doctoral chair, Samaritan House stakeholders, and multidisciplinary team members to assume a leadership role as a healthcare professional in both the academic (USF) and community (San Mateo County) settings.

Planning took place after the baseline audits in January 2014 when gaps were found in meeting the needs of the adult type II diabetic patients. The plan was that this DNP student (*who*)

would implement an EBPDFS (*what*) at San Mateo Samaritan House clinic (*where*) starting in August 2014 (*when*), through the support of front-line staff and administration (*how*), with the goal of 50 percent use of the EBPDFS by staff (*how much*) with plans to evaluate the usefulness of the EBPDFS and expand to the Redwood City Samaritan House clinic.

Doing involved educating and in-servicing staff so that the EBPDFS would correctly be placed in the charts of the adult type II diabetic patients at the San Mateo clinic and documentation on the flow sheet would begin. This DNP student provided one on one teaching in regards to calculating BMI and asked nursing assistant staff for return demonstrations as necessary.

Studying took place one and two months post implementation during September and October 2014. Monthly chart audits evaluated the use of the EBPDFS (i.e. whether it was in the chart, being used, and used properly). Post-implementation surveys asked staff to evaluate the usefulness of the EBPDFS, and their satisfaction with using it and requested suggested improvements in the EBPDFS.

Acting took place from the post-implementation chart audits and through multidisciplinary satisfaction survey results. Adjustments were made to the flow sheet based on staff feedback. A final version of the flow sheet with revisions and pilot project summary report was provided to the director of program operations to assist in successful expansion to the Redwood City Samaritan House clinic.

Gap analysis. This DNP student hypothesized that since both the Redwood City and San Mateo Samaritan House clinics have similar clienteles, chart audits at the San Mateo clinic would provide useful data for evaluating the gaps in quality and consistency of caring for all adult type II diabetic patients. During the week of January 6 through the January 10, 2014 chart

audits at San Mateo Samaritan House revealed important feedback data prior to implementing the project. Some of the charts could not be used, as they were for new patients with first intake appointments coming up, thus there was no data to collect. Thirty charts remained for review. Of the charts used, 31 percent were males (N= 9) and 69 percent were female (N= 21). Overall, the ages ranged from 43 years to 74 years with a total mean age of 53.9 years. Females were 36 years to 74 years with a mean age of 54.5 years, and males were 43 years to 60 years with a mean age of 52.5 years. Initial visits for type II diabetic patients with the healthcare providers were thorough, comprehensive, and provided appropriate and timely referrals. However, over time, chart audits revealed there was increased fragmentation of care and gaps in meeting key type II diabetic core measures.

Audits revealed obesity across the board (see Appendix P) with BMIs of up to 45 percent. Almost half (N= 14) of the patients' charts did not have BMI documentation. Of the documented patients, only two (N= 2) were in the normal BMI range. Others were defined as overweight with a BMI of greater than 25 to 30 (N= 4), or obese with a BMI of greater than 30 (N= 10). Of note in the undocumented BMIs, there appeared to be sizeable weights, ranging from 143 lbs. to 297 lbs. where N= 10 patients weight ranged from 172 lbs. to 297 lbs. Without height information in the chart, BMI could not be calculated to declare that subjects were overweight or obese, but the data led the DNP student to be suspicions of obesity with the high weight ranges. Shamseddeen, Getty, Hamdallah, and Ali (2011) and Tobias et al. (2013) have established a relationship between obesity, BMI, and diabetes.

The NCQA blood pressure quality guideline goal adopted for this project was for diabetic patients to have blood pressures less than 130/80 (NCQA, 2012). There were variances in both

elevated systolic and diastolic BP levels (see Appendix Q). More than half of participants (N=16, 53 percent) had a systolic BP greater than 140 to 170. Thirty-seven percent (N= 11) had a diastolic BP greater than 80 mm Hg. This was of concern since type II diabetics that have hypertension double their risk of cardiovascular disease (American Heart Association (AHA), 2012).

The NCQA goal is for HA1c is less than 7 percent to be viewed as *good control* and less than 8 percent as *fair control*. The HA1c chart audits (see Appendix R) revealed ranges from 6.0 percent to 12.4 percent. Twenty-three percent (N= 7) of the patients had HA1c levels of less than 7 percent and 20 percent of the patients (N= 6) had HA1c of less than 8 percent. Fifty-seven percent of the patients (N=17) had HA1c levels greater than 8 percent and of these 17 patients, 10 patients had HA1c levels between 10 and 12.4 percent, indicating *poor control*. Evidence-based literature has shown that glycemic control decreases complications and hospitalizations (The Diabetes Control and Complications Trial [DCCT], 1993; EDIC, 1999; UKPDS, 1999), which in the long-term can help to curb the financial impact of this disease.

GANTT. Successful implementation starts with an executable work plan (Harris et al., 2011). A work breakdown including milestones and deliverables is provided in a Gantt chart (see Appendix S). In December 2013, this DNP student met with the director of program operations for support and permission to perform chart audits to execute a gap analysis. This DNP student met with the director of program operations and began addressing a possible change in care project that could lead to healthcare improvements for the type II diabetic patients and increased satisfaction for staff in caring for these patients. The retrospective chart audits conducted January 2014 provided baseline data of the gaps in meeting three core measures which were; obesity, hypertension and poor HA1c control.

In April 2014, results of the January 2014 audits were presented at the monthly Samaritan House staff meeting, along with the EBPDFS. The majority of staff seemed to understand the advantages of implementing an EBPDFS, but some staff were conflicted about the EBPDFS format. The clinical advisory committee asked to suspend the implementation of the flow sheet in order to gather feedback and make recommendations for improved format changes. Throughout the life of a project, it is essential to revisit the strategy and make modifications as needed (Harris et al. 2011).

This situation in which the clinical advisory committee wanted involvement in the EBPDFS was a perfect example of Tuckman's storming stage and demonstrated the importance of halting the project to complete Tuckman's five stages (forming, storming, norming, performing, and adjourning) in order to develop a more effective and cohesive team (Larson and Gray, 2011). Harris et al. (2011) explains the importance of team members getting through Tuckman's stages as essential for a successful project

Forming took place in January 2014 when the DNP student met with administration and decided on the diabetic QI project. The NCQA diabetic guidelines were chosen by administration and supported by this DNP student. This DNP student with administration support was able to raise the level of excitement among front line staff prior to the start of the project.

Storming occurred at the April 2014 Samaritan House staff meeting when the EBPDFS was presented by the director of program operations. Some staff had strong opinions about the flow sheet format, signifying that conflict was rising among staff. Instead of losing team support and trust, administration and this DNP student decided to help move the team to the next step and resolve its differences as a subgroup in order to have greater staff buy-in.

Norming began taking place at the end of the April staff meeting when the clinical advisory committee asked and received permission from administration to have open feedback over the subsequent few months with staff in order for ideas to be shared and decide on format changes that staff would agree upon. This allowed for open exchange and shared involvement in the format of the EBPDFS. In this situation, it proved difficult for the DNP student to step back, extend the timeline of the project, and wait to see if the team members could work together and agree on a resolution. In June, July, and August, the clinical advisory committee continued *norming* as the format of the EBPDFS continued to evolve. Due to USF's academic deadlines, this DNP student had to meet with clinic administration and ask permission to begin *performing* the pilot project in San Mateo while allowing the council to continue its work on format changes.

This DNP student took the guidance of Harris et al. (2011) to implement a small-scale project over a "big bang approach" (p. 85). Therefore, the decision was made with my DNP Committee Chair that San Mateo Samaritan House was an optimal site to pilot the EBPDFS because per Harris et al. (2011), reaction time will occur quicker on a smaller scale and staff confidence in the tool and understanding of the importance of the project can progress with time. This scenario would support successful expansion of the project to Redwood City at a later time. In the end, multidisciplinary team members were asked to work collaboratively, make referrals as necessary, and document on the EBPDFS in order to have the most up-to-date data available for the next provider that saw the patient.

Methods of Evaluation

Post implementation monthly chart audits were the instrument of choice to gather the quantitative data to assess and evaluate if the flow sheet was present, being used, and if staff were providing proper documentation. Self-administered multidisciplinary staff surveys

(electronic and paper) using a five-point Likert-type agreement scale offered usefulness of the EBPDFS and valuable feedback with suggested improvements prior to expansion to the Redwood City clinic.

Strengths, Weakness, Opportunities, and Threats. A Strengths, Weakness, Opportunities, and Threats (SWOT) analysis was conducted to identify internal and external aspects that may affect this QI project positively or negatively (see Appendix T). The strengths of the project were the support of the clinic staff and executive leadership administrators. Weaknesses of the project were that the clinic did not have EMR. Opportunities included decreasing providers' time going through charts, decreasing fragmentation of care, and with successful completion, the opportunity to apply for national recognition. A threat was having only one DNP student (NP volunteer) as the project manager who was not employed full-time by Samaritan House, which is important for consistency and communication. Additionally, there was no trained NP replacement for the project leader, therefore fewer opportunities to promote change with staff when the DNP student was not present.

Return on investment. The return on investment (ROI) for this QI project will be difficult to measure initially upon pilot completion, but over time, there will be the potential for more measurable outcomes. ROI can be based on assumptions as well. The over-arching assumption in this project will be that streamlined care for the adult type II diabetic clients will increase compliance to the diabetic core measures and will improve follow-up, thereby decreasing common complications of diabetes. Another assumption is that with the success of the EBPDFS, interdisciplinary team members will spend less time going through charts prior to seeing patients, thus increasing job satisfaction. Another measure is that if there is one less

emergency room visit or hospitalization for an uninsured Samaritan House client, there will be cost savings to both the individual and San Mateo County. Finally, this QI project will be expanded to the Redwood City clinic and will then be known as a system-wide innovative model.

It is hoped that other free clinics will use this innovative model and consult with Samaritan House to build on this client-centered approach. It is also hoped the surrounding counties will seek out this DNP student to facilitate building a successful adult type II diabetic management program in their county. With further success, Samaritan House can apply for and acquire NCQA recognition. NCQA recognition would demonstrate Samaritan Houses commitment to maintaining top quality care with noted decreases in complications of type II diabetes. These improvement outcomes for the uninsured type II diabetic patients throughout San Mateo County would decrease hospital admissions, charitable care, and potential cost to clients who cannot afford care.

Hospitalization of diabetic patients is more likely to start in the emergency department (HCUP, 2008). The emergency room is the most expensive place to get care, and when uninsured clients choose the emergency room, it has a ripple effect on the cost of care for everyone (Blue Shield of California, 2014). Authors (The American College of Emergency Physicians, 2014; Himmelstein, Thorne, Warren, and Woolhandler, 2009; LaMontagne, 2013; and Robert Wood Johnson Foundation, 2014) report that the number one reason for individual bankruptcy is due to unpaid medical expenses. Samaritan House's 2013 annual report stated that many of its clients are one paycheck away from homelessness and any medical emergency would disrupt their financial stability. Knowing the financial situation of the Samaritan House clients

initiating this QI intervention would not only be important for improvement in diabetic core measures, but also for potentially decreasing the use of the county's emergency rooms and/or decrease inpatient admissions for the uninsured client who cannot pay. The result will be a decrease in expenses at surrounding hospitals. These outcomes could have a huge financial impact on individuals, their families, and the community.

Analysis

Quantitative and qualitative evidence was gathered via post-implementation charts audits (see Appendix U) and multidisciplinary staff satisfaction surveys (see Appendix V). September, October, and November chart audits assessed if the EBPDFS was present in the chart, if there was effortless ability to find documentation, if documentation was occurring, and if documentation was correct. To decrease the variability and ensure that the project was accomplished in an efficient and equitable manner, every week the DNP student placed the EBPDFS in adult type II diabetic charts in addition to the charts that had upcoming scheduled appointments. For the purposes of this project, all data analysis tables, appendixes, and spreadsheets utilized Microsoft Office Excel software.

Section IV: Results

Program Evaluation and Outcomes

Prior to the start of the project, the DNP student completed courses in project management, leadership, evidence-based practice, and financial management. However, this knowledge base did not match the learning opportunities that came with being the project manager in an active project. Even making use of PDSA, SWOT, communication/responsibility matrix, FMEA, and a detailed Gantt chart, the project still had obstacles. As the project

progressed, the DNP student realized that even when the project did not evolve as planned; the project was not a failure but rather it opened the doors for opportunities for improvement.

Unanticipated events that occurred that no one could have predicted was a leave of absence by one of the pivotal administrative stakeholders, closing the clinic due to plumbing problems, and one of the physicians going on a medical leave. All these occurred during the time the clinical advisory committee was trying to make decisions on the format changes to the EBPDFS. Since Samaritan House administration is small, there was no back up administrator to take over when something unforeseen like this came up. Understandably, since this administrator was a key stakeholder, timelines had to be extended again. This postponed implementation of the project a few more weeks.

Evaluating the success of this QI pilot was twofold, including the success of the process (conceptual) and the success of the project (operational). The starting point to evaluate the success of the process came from the multidisciplinary team members. This DNP student invited formal feedback from the multidisciplinary team members before, during, and after the launch of the project. Informal feedback was received via email, during one-on-one conversations, and through completion of a multidisciplinary staff survey two months after implementation. Evaluation of the success of the EBPDFS pilot project was appraised through monthly post-implementation chart audits.

Project Evolution. Implementation of the EBPDFS occurred in August 2014. This first group of patients seen at the diabetic clinic comprised of nine adult type II diabetic patients. The population included six females aged 39 years to 76 years with a mean age 52.3 years; one was diet controlled, three were insulin controlled, and two were controlled with oral agents. The three male clients were aged 32 years to 56 years with a mean age of 44.6 years; one was diet

controlled and the other two were insulin controlled. Finding a documented height in the charts to calculate BMI took hours going through every page of the individual charts. For charts with no height on record, a sticky reminder note was placed on the EBPDFS. The goal was to have the height located in one area of the flow sheet in order to decrease staff time significantly and make BMI documentation easier since height information changes minimally for aged adults, approximately 1 cm every 10 years after age 40 (Medline Plus, 2014).

During week two of implementation, the medical assistant (also front-line champion) pulled more charts that needed EBPDFS; these clients had a history of poor control and missed appointments. These six patients consisted of three men and three women. The men were aged 37 years to 59 years, while the women were 40 years to 54 years. The mean ages of both groups were 47 years. Two of the men were on oral agents and one was on insulin treatment. All three women were controlled with oral agents but one had recently transitioned to insulin administration. All clients had blood pressures below 130/80 except for one male client who was 173/88 while his HA1c was 13.8 (poor control range). Similar to the original gap analysis, all clients were obese except for one that had a BMI of 25 (normal). This second week of charts brought to light the impact obesity has on diabetes and also when clients have barriers (personal or behavioral) in accessing care it impacts disease control.

The DNP student decided during this second week that it would be advantageous to highlight in yellow on the EBPDFS the area where HA1c >9 (poor control) as well as BP >140/90 (poor control). This act would bring more attention to the provider's eye of concerning areas that need to be addressed.

During the third week, (N= 8) six charts had the EBPDFS implemented because the two previous no-show patients were rescheduled. This population consisted of one male aged 38

years controlled with oral agents and five women aged 44 years to 71 years with a mean age of 59.6 years. Four women were on oral agents and one was on insulin. All of these clients had BMIs from 30 to 39 (obese). Only one client demonstrated poor blood pressure control at 166/92. One interesting fact was that three of these patients were family members; husband, wife and adult son. It was advantageous to observe during the chart audit that the wife/mother was attending and participating in nutrition groups even as recently as July 2014. This observation prompted this DNP student to include documentation of attendance at the nutrition group and/or visits with the nutritionist on the flow sheet.

Week four brought additional patients scheduled for the monthly diabetic clinic. The population consisted of one male aged 51 years who was insulin dependent and five women aged 45 years to 62 years with a mean age of 58 years. Three women were controlled with oral agents, one was insulin controlled, and one was diet controlled. Two clients did not have documentation of height, so BMI could not be calculated, but their weight ranges were 180 pounds to 200 pounds. The other clients' BMIs ranged from 24.4 to 31.6.

In week five, there were five women aged from 36 years to 54 years of age. Two had been clients at Samaritan House for more than seven years. Three women were on oral agents and two women were insulin dependent. Only three charts had recorded heights and weights to successfully calculate the BMI. Initially, these clients showed BMI in the obese range, but two of the patients reached a BMI of less than 25 by 2014, demonstrating improved weight loss.

During week six, eight charts were implemented with the EBPDFS. This population consisted of six women age 43 years to 69 years and two males aged 55 years and 66 years. Four of the women were controlled with oral agents and two were on insulin. Both men were controlled by oral agents. Of interest was the fact that two of the women were recently diagnosed

with type II diabetes. One at a community health fair and one after going to the emergency room and seeking care. This supports the data by the CDC, 2011 and Healthy People 2020, 2013 that many people are unaware they have type II diabetes.

During week seven all the charts for the upcoming October diabetic clinic were prepped with the EBPDFS. This population of patients included the two previous "no shows" that were rescheduled. Unfortunately due to plumbing issues, patients had to be rescheduled to the following week. This last minute rescheduling to October 15th (N= 10), 16th (N= 10) 2014 yielded twenty patients. All the charts had the EBPDFS present. On October the 15th only ten percent (N= 1) used the EBPDFS. This one patient had poor control that may have been the motivation to use the flow sheet. The provider documented in the highlighted (poor control) section of the flow sheet concerning HA1c and LDL in addition to a BMI over 26 indicating the patient was overweight. October 16th (N=10) all charts had the flow sheet and eight charts provided proper use/documentation. All of these patients were in good control with HA1c less than 7 and blood pressures less than 130/70 therefore they were asked to scheduled follow up in four months.

During week eight, the November diabetic clinic charts totaled 12 patients. Two of the patients had appointments with the provider for thyroid follow up therefore they did not need/have a diabetic flow sheet. For that reason these two patients charts were not included in the November audits. The remaining 10 patients consisted of eight women and two men. The women were 34 years to 69 years with a mean age 55.8 years. Unexpectedly, one of the women was in the hospital for two days in October with diabetic ketoacidosis. The other two male patients were 52 years and 54 years old.

Lesson learned. This DNP student did not realize the busy schedule of administration. Making an appointment to meet with the director of program operations and receiving permission to perform chart audits took weeks instead of the assumed days. Initial plans were to implement a pilot project in the summer of 2014 at the San Mateo clinic. After a successful pilot, the goal was to expand the project to Redwood City (fall 2014). Although administration was quick to choose the NCQA EBPDFS, implementation was not a quick process. The staff meeting on April 14, 2014, brought up disagreement and discussion on the format of the EBPDFS. The clinical advisory committee wanted active involvement in the format changes. Harris et al. (2011) stated that resistance to change is a reality in complex systems and should be embraced. Administration was in full support, and offered to this DNP student the option that by taking this additional step it would allow the project to launch at both the San Mateo and the Redwood City clinic. This DNP student could see the value of this alternative plan and felt it would be pivotal and essential for the project's success, but was reluctant to lose months of the timeline. Since this project was this DNP student's first project endeavor, it was difficult to relinquish control. However, this DNP student agreed with administration and stepped back in June 2014 to allow the clinical advisory committee to facilitate feedback in order to come up with format revisions in the flow sheet that staff could agree upon, implement, and still maintain NCQA guidelines. It was helpful to hear the benefits of this alternative strategy from administration. This DNP student agreed to this alternative plan and supported the council involvement because it would allow this DNP student to bypass the pilot project in San Mateo and instead implement at both San Mateo and Redwood City Samaritan House clinics.

What was not anticipated was that the council would take in excess of three months (May, June, July, and August) to create format revisions demonstrating that resistance is

common in complex systems. Since the DNP student had an academic timeline, this extended time period required the DNP student to contact the director of program operations to obtain support and permission to return to the original strategy and pilot the EBPDFS at San Mateo Samaritan House in August instead of postponing the project even longer. This alternative plan turned out to benefit both the DNP student and the clinical advisory council. The DNP student could now meet the university requirements and begin the pilot.

Post implementation chart audits. The first week of September post-implementation audits did not show promising results (see Appendix U) because only seven of the nine patients who had appointments showed up. Additionally there was documentation of one patients concerning BP at 180/ 90 and elevated BMI written on the history and physical sheet but not on the EBPDFS. Since this gathering and documentation was assigned as one more step for the medical assistant staff, this DNP student had to discover why after one-on-one training, the documentation on the EBPDFS did not occur. It was revealed that the lead medical assistant (and front line champion) that worked that shift reported to this DNP student that she was too busy and failed to do what was asked. Although this situation was disappointing, this DNP student was able to see this as an opportunity for improvement and repairable because it was a result of a chaotic shift (structural) and not related to more difficult barriers such as confusion, or resistance to change. It was clear her apology was sincere and this DNP student felt strongly that staff should be acknowledged for their forthright honesty. Upon further investigation, one nursing assistant reported difficulty using the laminated BMI tool because the heights were only in inches. This staff person admitted she did not understand how to get the patients' BMI without the feet and inches written out. This DNP student mitigated this barrier by talking with front line staff and received input for a review of conversions from feet to inches, and explained the other

available tool that allowed staff to turn the dial to feet/inches and line it up with weight to reveal the accurate BMI. This experience taught this DNP student that staff need to be encouraged to use whichever method appeals to them, not what this DNP student prefers to use.

The October 2014, post-implementation chart audits (see Appendix U) demonstrated that 100 percent of the type II diabetic patients' charts had the EBPDFS present. Unlike the September chart audits; there was also improvement over time leading to 45% correct documentation on the flow sheet in October.

The November 2014, chart audits (see Appendix U) demonstrated as in the previous audits the presence of an EBPDFS in all the diabetic charts. Although 12 patients were seen at the diabetic clinic only 10 patient were diabetics. Of the 10 diabetic charts, five used the flow sheet and provided appropriate documentation from that days visit on the flow sheet.

Staff satisfaction surveys. In order to decrease experimenter effect, this DNP student requested the lead medical assistant (and front-line champion) email the survey link as well as offer a paper version to staff two months post implementation (see Appendix V). Paper surveys were important to offer as surveys delivered via the internet are not appropriate for certain populations that offer low response rate such as the elderly and children (Polit and Tatano Beck, 2014). Since most of the staff at Samaritan House are retired and possibly considered digital immigrants (DeGraff, 2014; Prensky, 2001) this supported the decision by this DNP student to put forward both survey options. Fifty five percent (N= 5) chose to use the survey monkey link and forty five percent (N= 4) filled out paper surveys.

Staff satisfaction survey results completed two months post implementation yielded results predominately from nursing disciplines but also included other members of the multidisciplinary team. The breakdown of responses per disciplines were (see Appendix W)

dietitian (N= 1), physician (N= 2), RN (N= 2), NP (N= 2), and nursing assistant (N= 2). Eighty nine percent of survey responders reported "yes" to having seen the flow sheet. Of these respondents over fifty percent (N= 5) reported completing or filling out the diabetic flow sheet. For usefulness of the flow sheet over fifty percent (N= 5) agreed and thirty three percent (N= 3) strongly agreed the flow sheet was useful, while dietary remained neutral. Forty four percent (N= 4) agreed or strongly agreed (N= 4) for a total of eighty eight percent the flow sheet saved time while dietary remained neutral. For satisfaction sixty six percent agreed (N= 6) and twenty two percent (N= 2) strongly agreed they were satisfied with the flow sheet.

The last two narrative questions asked participants to put in writing specifically what they liked about the flow sheet and suggestions for improvements. These comments offered fruitful ideas for improvements (see Appendix W). Specific comments by end users was they liked the flow sheet because it provided an ease of tracking information/lab work, and offered the convenience of having it on one page instead of going through pages of a chart in order to see a patient's progress. Suggested improvements to the flow sheet was to highlight LDL, include BUN/Creatine, and to make an addition to the annual checks section to include documentation of dentition or dental health. The suggestion to include annual dental care is supported by Healthy People 2020 (2013) and the New York Department of Health (NYDH, 2011). Another improvement suggestion was to have three BMI boxes (normal, obese, and overweight) highlighted in red if the BMI was over 30 (obese), and highlighted in yellow if the BMI was 25-30 (overweight). Feedback from the NP was that the flow sheet can be used as a teaching tool to educate patients of where they are and where they would like to be.

Section V: Discussion

Summary

This project had a clear and relevant purpose to meet the needs of the type II diabetic patients at Samaritan House, and the intervention of implementing an EBPDFS was supported by evidence-based research. The EBPDFS placed in the front of the adult type II diabetic patients' charts allowed the healthcare providers to have at first glance a single summarized page documenting how the patient was performing as far as annual specialty exams, lab work, BMI, and BP before meeting with the patient. The brief three month follow up period post-implementation allowed an evaluation of the flow sheet but did not allow enough time to accurately evaluate the impact of the flow sheet on diabetic core measures. This could be a future project.

Since organizational culture refers to shared norms, beliefs, values, and assumptions that bind people together and represents their sense of identity (Larson & Gray, 2011) there were many important lessons learned about group culture during the project. As the DNP student's first QI project, much learning took place around the importance of being open and accepting to compromise, and helping staff feel that they are valued and active participants. Additionally, even with timelines, one needs to be patient, and as long as the feedback for the modifications do not affect the core values of the project, they should be considered. Taking more time before implementation allowed for greater interest and participation.

One key to the success of acquiring support of staff on this project that this DNP student found difficult to endure, was stepping back and allowing the clinical advisory committee to facilitate feedback from staff and offer format changes on the EBPDFS. Looking back, this was one of the most important lessons learned and pivotal in moving the project forward. The DNP student experienced the crucial step in getting past *storming* and getting through to *norming*. It was imperative for primary and secondary stakeholders to feel heard when they were expressing

initial resistance to the EBPDFS format and allow them to actively participate in the format changes. It was important for staff to feel they were instrumental in the changes.

This DNP student learned by working closely with front-line staff that it was important to be actively involved as it can affect the success of the process. Working closely with staff reinforced to the DNP student that most healthcare providers can provide informational wisdom that can be of great improvement in a project. One example was a front-line staff member suggested that all of the adult type II diabetic charts be in a color that stands out. This way, it would be obvious to every healthcare provider that they are working with a diabetic patient and should review the EBPDFS and address any anticipated lab work or annual specialty appointments that need to be arranged.

Implications for advanced nursing practice. One implication of this project for advanced nursing practice is an advanced practice nurse can successfully develop, implement, and provide an evidence based change in practice that can be tailored to meet the unique needs of a population within a healthcare organization. Although this pilot project was specific to uninsured adult type II diabetics, it demonstrated that similar projects could successfully occur with other chronic illnesses such as hypertension, obesity, heart disease, arthritis, and dialysis patients. A paper EBPDFS could be tailored for sites without EMR and for those with EMR, it could be electronically customized to include pop-up reminders when specialty services or lab work is due. Another implication for future projects would be address screening at risk clients and implementing a primary prevention program to decrease the prevalence of type II diabetes.

Dissemination plan. Community health projects are frequently initiated to share valuable information and or strengthen community programs (University of Regina, 2011). The hopes are

that upon degree completion, this DNP student will increase collaborative exchange with partners at both the university and community level to include expansion to the Redwood City Samaritan House clinic. Today there are a range of approaches a DNP student can use to disseminate evidence-based pilot results; examples include publications, poster, and podium presentations at conferences (Harris et al. 2011; Larson & Gray, 2011; Menyx & Fineout-Overholt, 2011). Further dissemination includes participating in poster presentations at the USFSON, Stanford Hospital, and local nursing conferences (e.g. Sigma Theta Tau and Clinical Nurse Leader) to inform and promote the success of this EBPDFS pilot project. On September 10, 2014, an application and abstract were submitted for the poster presentation to the Association of California Nurse Leaders' February 2015 Innovations and Best Practice conference.

Relation to Other Evidence

Although post-implementation audits occurred monthly and staff surveys occurred two months after implementation, it was not possible to demonstrate cause and effect on core patient outcome measures. This pilot warrants continued chart audits to assess the sustainability of the flow sheet and possible long-term impact on the three core measures discovered on gap analysis (documentation of BMI, hypertension, and HA1c). The first post-implementation audits in September 2014 at San Mateo Samaritan House demonstrated 100 percent documentation of BMI on the history and physical sheets, but there was no documentation on the EBPDFS due to a chaotic evening clinic and lack of knowledge of methods to obtain a correct BMI. Since most of the intake information captured such as height, weight, and vital signs is the role of the front-line nursing assistant staff, having staff take ownership of a flow sheet increases sustainability of a

change process (Pastel et al. 2009; White, 2000). At Samaritan Houses, this function was woven into daily work load.

Research has demonstrated that women with a history of gestational diabetes are seven times more likely to develop type II diabetes (National Diabetes Information Clearing (NDIC, 2014). This data is relevant and should be kept in mind because it establishes the importance of expanding the EBPDFS to all clients with a history of gestational diabetes as an evidence-based primary prevention strategy.

The research specific to the value of a flow sheet supports this QI project (Cole et al., 2009; Hahn et al., 2008; Hemple, 1990; Lewis et al., 2004; Lin et al., 2007; Moharan & Farahat, 2008; Patasi & Conway, 2008; Ruoff & Gray, 1999; Shaw et al., 2014; White, 2000) (see Appendix E). Since measuring HA1c levels provides the preceding two to three months average blood glucose, it was too soon to measure the impact of the EBPDFS on differences in HA1c results. Similarly, weight and BMI changes will take longer to measure accurate results. Regardless, evidence supports that type II diabetic patients keeping HA1c levels between 8 and 10 have about half the number of hospital stays at about half the cost over three years compared to patients whose HA1c level was more than 10 percent (Menzin, Langley-Hawthorne, Friedman, Boulanger, & Cavanaugh, 2001).

Barriers to Implementation/Limitations

It was known both before and during implementation that there was no financial support for the project. This left the risk of project termination upon pilot completion. This lack of funding held a potential future barrier for the sustainability of the project. Additionally, both the clinical advisory council request for extensions of timelines and the unanticipated leave of absence of a board member forced a rapid implementation and evaluation in the period of four

months (August, September, October, and November), which was a time-limiting factor. The initial push back from staff on the flow sheet format could have been seen as a barrier in the project's progress by this DNP student because it forced a suspension of timelines. Upon reflection, this delay was not necessarily a bad thing. This time allowed this DNP student to work more directly with front-line staff that would be working closest to the flow sheet and encouraged cohesive problem-solving by interested staff.

From a patient perspective, many factors contribute to healthcare disparities and/or barriers, such as ethnic/cultural values, decreased access to healthcare, low socioeconomic status, and level of education. These factors contribute to a higher prevalence of diabetes, hospitalization, complications, and even death from type II diabetes (Frist, 2005; Rabi et al., 2006, Saydah & Lochner, 2010; Walker et al., 2010). Barriers exist for the uninsured in that they are likely to delay care, struggle accessing healthcare services, are more prone to having serious conditions and are more likely to die then clients with health insurance (American College of Emergency Physicians, 2014; Driscoll & Bernstein, 2012; Handy, 2013). Obstacles for clients to obtaining health care include access to transportation, language barriers, and cultural concerns (Samaritan House, 2013b). Samaritan House is close to public transportation and has been able to provide culturally competent care by having volunteer bilingual interpreters on site.

Factors from this pilot that limit its generalizabilty are that Samaritan House clients are predominantly Hispanic, making them a homogenous group therefore results cannot be generalized beyond the Hispanic populations. However, having a homogenous group denotes there is reduced variability because the subjects are similar (Polit, 2010). The population had an obesity trend across the board, which supports the research that type II diabetes increases with age, and obesity not only increases risk, it may also be a barrier to improving glucose control in

type II diabetes (Boyle, Thompson, Gregg, Barker, & Williamson, 2010; Hicks, 2011; Shamseddeen, et al., 2011; Tobias et al., 2014).

Finally the barriers and limitations of the staff were that most of the providers at Samaritan House are intermittent volunteers and work sporadically, so it was impossible to obtain a 100 percent response rate on the post-implementation survey. One of the two physicians that cares for the diabetic patients was out on medical leave from August through October, leaving only one day a month during the fall for diabetic patients to be seen. This limited post-implementation chart audit results (September, N= 9; October N= 20; November, N=10).

Interpretation

This DNP student expected the pilot to be fully embraced by all staff after the April staff meeting and be launched in the summer 2014 at both San Mateo and Redwood City clinics. The delay by the clinical advisory committee was not clearly understood by this DNP student and was questioned if it was a "competing commitment." Competing commitments cause valued employees to act in ways that are frustrating to project managers but should not be perceived as weakness, but rather self protection (Kegan & Lahey, 2001). Since the Samaritan House staff are volunteers and given the fact that these changes in format were attempted during the summer months when many staff are on vacation, it is possible orientating all the staff to the EBPDFS may have been difficult due to scheduling purposes rather than competing commitments.

Only when this DNP student was implementing the EBPDFS in the charts did the DNP student realize that the advisory committee was correct in asking for modifications in the flow sheet. Some of the well controlled diabetic clients only came every six months for appointments; hence the EBPDFS was almost blank with the original EBPDFS as a year spreadsheet. By removing the months and year on the flow sheet, documentation could be extended for years,

providing an improved visual of the diabetic trends over a longer period of time for the health care provider to view and share with the patient.

During the first few weeks of implementation, some changes made to the flow sheet were putting the flow sheet in vertical format, highlighting poor control ranges, adding nutrition groups, moving the flow sheet location in chart across from medication sheet, and removing months and years from the flow sheet. Improvements that will be made from staff satisfaction survey results will include the addition of dental/dentition in annual checks, highlighting obese and overweight BMI, and LDL poor control.

Conclusions

Most of the staff and administration were motivated and excited about the implementation of the pilot EBDFS in the adult type II diabetic charts and this contributed to its success. This DNP student demonstrated the ability to master the role as a system leader and successfully complete a QI project that had a positive impact on streamlining care for the type II diabetic patients in San Mateo county Samaritan House clinics. The EBPDFS was a useful and valuable tool for staff. Initial chart audits results in September provide areas that needed improvements. However, the October chart audits showed more promise in that all the charts had a flow sheet and forty five percent of these charts had proper use and documentation on the EBPDFS. Although November chart audits were small (N= 10) all the charts had a flow sheet and fifty percent had proper use and documentation on the EBPDFS. Staff satisfaction survey results were multidisciplinary and invited positive suggestion for improvements

Future implications. Implications for a future primary prevention project include requiring the EBPDFS for clients with a history of gestational diabetes or a BMI greater that 30 (obese). During the audits, it was noted that some clients upon diagnosis of type II diabetes

would lose weight, follow a diet, exercise and make positive lifestyle changes. The implications for future qualitative studies would be performing one-on-one interviews with these clients to discover if there was anything the healthcare provider did or said that was pivotal in motivating them to make these lifestyle changes. This would also offer insight into impacting behavioral changes. Implications for the future would include a greater focus on primary prevention in this population so that there is not a continual increase in the number of type II diabetic clients at Samaritan House and rather with primary prevention classes and one-on-one support for at risk clients in hopes that they can postpone or avoid type II diabetes.

Section VI: Other Information

Funding

Successful efforts should be made to expand and sustain successful projects. Sustainability for the EBPDFS would involve financial support of some kind since the DNP student will have completed her course work and will no longer be volunteering her hours as practicum hours. Samaritan House has a grant manager that has agreed to be available to the DNP student upon her graduation. Samaritan House was successful in acquiring a grant from Stanford Hospital and clinics for $ 50,000 to run monthly diabetes care days (see Appendix X). Upon graduation, the DNP student, with the assistance of the grant manager, plans to seek out financial support through RWJF, Friends of Nursing, and Stanford Legacy. The goal for sustainability of this project is to have an eight hours a week (.2 FTE) paid position for an advanced practice nurse or NP to run a diabetic clinic in an effort to decrease the adult type II diabetic patients' risk outcomes, improve coordination and communication of care among disciplines, and be life-changing for patients and healthcare providers alike.

References

Agency for Healthcare Research and Quality. (2011a). Research on diabetes care, translating research into practice. Retrieved from http://www.ahrq.gov/research/findings/factsheets/diabetes/tripdiab/index.html

Agency for Healthcare Research and Quality. (2011b). National healthcare disparities report. Retrieved from http://www.ahrq.gov/research/findings/nhqrdr/nhdr11/nhdr11.pdf

American Association of Clinical Endocrinologists (AACE) (2011). American Association of Clinical endocrinologist medical guidelines for clinical practice for developing a diabetes mellitus comprehensive care plan, Retrieved from https://www.aace.com/files/dm-guidelines-ccp.pdf

American College of Emergency Physicians. (2014). The uninsured: Access to medical care. Retrieved from http://www.acep.org/News-Media-top-banner/The-Uninsured--Access-To-Medical-Care/

American Diabetic Association. (2013). The cost of diabetes. Retrieved from www.diabetes.org/advocate/resources/cost-of-diabetes.html

American Heart Association. (2012). Cardiovascular disease and diabetes. Retrieved from http://www.heart.org/HEARTORG/Conditions/Diabetes/WhyDiabetesMatters/Cardiovascular-Disease-Diabetes_UCM_313865_Article.jsp

Arndt, J., & Netsch, S. (2012). Research study or quality improvement project? *Journal of Wound, Ostomy, and Continence Nursing, 39*(4), 371-375.

Belmont Report. (1979). The Belmont Report: *Ethical principles and guidelines for the protection of human subjects of research*. Retrieved from http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html

Blue Shield of California. (2014). Emergencies only. Retrieved from https://www.blueshieldca.com/employer/knowledge-center/features/cost-management/small-changes/emergencies-only.sp

Boyle, J., Thompson, T., Gregg, E., Barker, L., & Williamson. (2010). Projection of the year 2050 burden of diabetes in the U.S. adult population: dynamic modeling of incidence, mortality and prediabetes prevalence. *Population Health Metrics, 8*(20), 1-12.

Bradley, R., Oberg, F., Calabrese, C. & Standish, I., (2007). Algorithm for complementary and alternative medicine practice and research in type 2 diabetes. *Journal of Alternative & Complementary Medicine*, 13(1), 159-175.

Burns, L. R. (1995). Medical organization structures that promote quality and efficiently: Past research and future considerations. *Quality Management in Health Care, 3*(4), 10-18.

Cacchione, P. (2011). When is the institutional review board approval necessary for quality improvement projects? *Clinical Nursing Research, 20(*1), 3-6.

Carlyle, E. (2014). America's most over priced cities. *Forbes.* Retrieved from http://www.forbes.com/sites/erincarlyle/2014/02/26/americas-most-overpriced-cities/

Center for Disease Control and Prevention. (2003). HIPPAA Privacy rule and public health, guidance from DCD and U.S. Department of health and human services. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/m2e411a1.htm

Centers for Disease Control and Prevention. (2010). Number (in thousands) of hospital discharges with diabetes as any listed diagnosis, United States, 1980-2006. Retrieved from http://www.cdc.gov/diabetes/statistics/dmany/fig1.htm

Centers for Disease Control and Prevention. (2011). National diabetes fact sheet. Retrieved from http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf

Cole, A., Nathan, D., Savaria-Porter, E., Copeland, P., Turchin A., Brunt, M., Zusman, R., Barrett, J., Wexler, D., Case, E., McMahon, G., & Mort, E., (2009). An algorithm for the care of type 2 diabetes, *Critical Pathways in Cardiology, 8*(4), 156-165.

Congressional Budget Office. (2014). Effects of the affordable care act on health insurance coverage-baseline projections. Retrieved from https://cbo.gov/sites/default/files/cbofiles/attachments/43900-2014-04-ACAtables2.pdf

Cosco, T., Knopp, A., & Milke, D. (2007). Investigative first steps: appropriate identification and ethical review of research and quality improvement. *Online Journal of Nursing Informatics, 11*(3).

Dearholt, S., & Dang, D. (2012). Institute for Johns Hopkins, N., Johns Hopkins, U., & Sigma Theta Tau, I. Johns Hopkins Nursing Evidence-based Practice: Models and Guidelines. Indianapolis, IN: Sigma Theta Tau International.

DeGraff, J. (2014). Digital Natives vs. Digital Immigrants. *Huffington Post*, Retrieved from http://www.huffingtonpost.com/jeff-degraff/digital-natives-vs-digita_b_5499606.html

Department of Health and Human Services. (2010). *Health, United States, 2010*. Retrieved from http://www.cdc.gov/nchs/data/hus/hus10.pdf

Donabedian, A. (1966). Evaluating the quality of medical care. *Midland Memorial Fund Quarterly, 44*(1), 166-203.

Driscoll, A. & Bernstein, A. (2012). Health and access to care among employed and unemployed adults: United States, 2009-2010. Retrieved from http://www.cdc.gov/nchs/data/databriefs/db83.pdf

Dynamed, (2014). *Dynamed overview*. Retrieved from https://dynamed.ebscohost.com/about/about-us

Fernandez, A., Schillinger, D., Warton, M., Alder, N., Moffet, H., Schenker, Y., Salgado, V. Ahmed, A. & Karter, A. (2010). Language barriers, physician patient language concordance, and glycemic control among insured Latinos with diabetes: The diabetes study of northern California. *Journal of General Internal Medicine, 26*(2), 170-176.

Finkler, S. A., Jones, C. B., & Kovner, C. T. (2013). *Financial management for nurse managers and executives*. St Louis, MO: Elsevier.

Frist, W. (2005). Overcoming disparities in U.S. health care. *Health Affairs, 24*(2), 445-451.

Ginsberg, (2011). The ACCORD (Action to control cardiovascular risk in diabetes) lipid trial, *Diabetes Care*, *34*(2), 107-108.

Green, J. L., Gazmararian, J. A., Rask, K. J., & Druss, B. G. (2010). Quality of diabetes care for underserved patients with and without mental illness: Site of care matters. *Psychiatric Services, 61*(12), 1204-1210

Hahn, D., Ferrante, J., Crosson, J., Hudson, S., & Crabtree, B. (2008). Diabetes flow sheet we associated with guideline adherence, *Annals of Family Medicine, 6*(3), 235-238.

Haider, M. & Kreps, G. (2004). Forty years of diffusion of innovations: Utility and Value in public health. *Journal of Health Communication*, (9), 3-11.

Handy, C., Ma, S., Block, L., de la Torre, D., Langley, A. & Cook, B. (2013). Identifying patient, community and program specific barriers to free specialty care utilization by

uninsured patients in east Baltimore, *Journal of Health Care for the Poor and Underserved*, (24), 688-696.

Harvard Medical School affiliate Joslin Diabetes Center (JDC) (2012). Joslin diabetes center and Joslin clinic clinical guideline for adults with diabetes. Retrieved from http://www.joslin.org/docs/Adult_guidelines_-edits_05_16_2012-update_0213_(2).pdf

Harris, J., Roussel, L., Walters, S. & Dearman, C. (2011) *Project Planning and Management A guide for DNL's, DNP's, and Nurse Executives.* Canada: Jones and Bartlett.

Healthcare Cost and Utilization Project. (2008). *HCUP statistical briefs- Diabetes*. Retrieved from http://www.hcup-us.ahrq.gov/reports/statbriefs/sb_diabetes.jsp

Healthy People 2020. (2013). *Topics & objectives-Diabetes*. Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=8

Hedges, C., & Williams, B. (2014). *Anatomy of Research for Nurses*. Indianapolis: Sigma Theta Tau International.

Hempel, R. (1990). Physician documentation of diabetes care: use of a diabetes flow sheet and patient education clinic. *Southern Medical Journal, 83*(12), 1426-1432.

Hicks, D. (2011). Setting standards for diabetes care. *Nursing Times, 107*(32/33), 22-26.

Himmelstein, D., Thorne, D., Warren, E., & Woolhandler, S. (2009). Medical bankruptcy in the United States, 2007: Results of a national study. *The American Journal of Medicine*, *122*(8), 741-746.

Howland, R., Pegany, V., Coleman, C. & Connolly, J. (2014). Remaining uninsured: a population profile. *Insure The Uninsured Project*, 1-12. Retrieved from http://itup.org/wp-content/uploads/2014/02/Remaining-Uninsured-Groups.pdf

Institute of Healthcare Improvement (IHI). (2013a). IHI Triple Aim Initiative Retrieved from http://www.ihi.org/offerings/initiatives/tripleaim/pages/default.aspx

Institute of Healthcare Improvement (IHI). (2013b). IHI Failure mode and effects analysis (FMEA) tool. Retrieved from http://www.ihi.org/resources/Pages/Tools/FailureModesandEffectsAnalysisTool.aspx

Institute of Medicine. (2011). Clinical practice guidelines we can trust. Retrieved from http://www.iom.edu/~/media/Files/Report%20Files/2011/Clinical-Practice-Guidelines-We-Can-Trust/Clinical%20Practice%20Guidelines%202011%20Report%20Brief.pdf

Institute of Medicine. (2010). *The future of nursing.* Retrieved from http://www.iom.edu/reprots/2010/The-future-of -nursng-leading-change-advancing-health.aspx

International Diabetes Federation (2012). Global guidelines for type II diabetes. Retrieved from http://www.idf.org/sites/default/files/IDF-Guideline-for-Type-2-Diabetes.pdf

John Hopkins University. (2014). Johns Hopkins Evidence Based Practice Appraisal Tool. Retrieved from file:///C:/Users/steve/Downloads/Johns%20Hopkins%20Nursing%20Evidence-Based%20Practice%20Model%20and%20Guidelines%20(5).pdf

Johnson, H., & Hill, L. (2011). *At Issue: Illegal Immigration*. *Public Policy Institute of California*. Retrieved from http://www.ppic.org/content/pubs/atissue/AI_711HJAI.pdf

Kegan, R., & Lahey, L. (2001). The real reason people won't change. *Harvard Business Review*. Retrieved from http://hbr.org/2001/11/the-real-reason-people-wont-change/ar/1

Klabunde, C., Clauser, S., Liu, B., Pronk, N., Ballared-Barbash, R. Huang, T. & Wilder Smith, A. (2014). Organization of primary care practice for providing energy balance care. *American Journal of Health Promotion, 28*(3), e67-e80.

Knowler, W., Fowler, S., Hamman, R., Christophi, D., Hoffman, H., Brenneman, A., Brown-Friday, J., et al. (2009). Diabetes prevention program research group, 10 year follow up of diabetes incidence and weight loss in the diabetes prevention program outcomes study. *Lancet, 374*(9702). 1677-1686.

Kopcha, J. (2011). Salary survey: are you being paid what you're worth? *Clinical Advisor.* Retrieved from http://www.gru.edu/alliedhealth/pa/documents/salary-survey-2011.pdf

LaMontagne, C. (2013). NerdWalet health find medial bankruptcy accounts for majority of personal bankruptcies. *Nerd Wallet Health.* Retrieved from http://www.nerdwallet.com/blog/health/2013/06/19/nerdwallet-health-study-estimates-56-million-americans-65-struggle-medical-bills-2013/

Lancet (Editorial). (2010). The day of diabetes: coming soon to a person near you. *Lancet, 376*(9752), 1513.

Larson E. & Gray, C. (2011). *Project management the managerial process*. (5th ed.). New York: McGraw-Hill.

Laurant, M., Reeves, D., Hermens, R., Braspenning, J., Grol, R., & Sibbald, B. (2005). Substitution of doctors by nurses in primary care. *Cochrane Database of Systematic Review, 18*(2), CD001271.

Lewis, A., Sobel, E., & DelPizzo (2012). Extent and impact of diabetes flow sheet use in Delaware Primary care Physicians' offices. Retrieved from http://dhss.delaware.gov/dhss/dhcc/files/diabetesflowsheetreport091504.pdf

Lin, D., Hale, S., & Kirby, E. (2007). Improving diabetes management, structured clinic program for Canadian primary care. *Canadian Family Physician*, (53), 73-75.

McDonald, K. M., Sundaram, V., Bravata, D. M., Lewis, M. A., Lin, N., Kraft, S., McKinnon M., et al. (2007). Closing the quality gap: A critical analysis of quality improvement strategies. *Agency for Healthcare Research and Quality. 4*(7), Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK44015/pdf/TOC.pdf

McNett, M., & Lawry, K. (2009). Ethico legal Perspectives: Research and quality improvement activities: when is institutional review board review needed? *Journal of Neuroscience Nursing, 41*(6), 344-347.

Medline Plus. (2014). Aging changes in body shape. Retrieved from http://www.nlm.nih.gov/medlineplus/ency/article/003998.htm

Melnyk, B., & Fineout-Overholt, E. (2011). Evidence-based practice in nursing and healthcare. Philadelphia: Lippincott, Williams & Wilkins.

Menzin, J., Langley-Hawthorne, C., Friedman, M., Boulanger, L., & Cavanaugh, R. (2001). Potential short-term economic benefits of improved glycemic control. *Diabetes Care*, (24), 51-55.

Moharram, M. & Farahat, F. (2008). Quality improvement of diabetes care using flow sheets in family health practice. *Saudi Medical Journal, 29*(1) 98-101.

Naranjo, L.S. & Kaimal, P. V. (2011). Applying Donabedian's theory as a framework for bariatric surgery accreditation. *Bariatric Nursing and Surgical Patient Care, 6*(1), 33-37.

National Committee for Measuring Quality Assurance. (2012). Diabetes recognition program, Retrieved from http://www.ncqa.org/tabid/139/Default.aspx

National Committee Measuring Quality Assurance (2013a). Managing diabetes complications. Retrieved from http://www.ncqa.org/PublicationsProducts/OtherProducts/QualityProfiles/FocusonDiabetes/ManagingDiabetesComplications.aspx

National Committee Measuring Quality Assurance (2013b). Value and effective diabetes management and prevention, Retrieved from http://www.ncqa.org/PublicationsProducts/OtherProducts/QualityProfiles/FocusonDiabetes/ValueofEffectiveDiabetesManagement.aspx

National Diabetes Information Clearing (2014). Am I at risk for type 2 diabetes? Retrieved from http://diabetes.niddk.nih.gov/dm/pubs/riskfortype2/

National Heart Lung and Blood Institute. (2011). Disease Statistics. Retrieved from http://www.nhlbi.nih.gov/about/factbook/chapter4.htm

National Institute of Health. (2013). Diabetes prevention a good investment. Retrieved from http://www.nih.gov/researchmatters/april2012/04022012diabetes.htm

Nelson, E. C., Batalden, P. B., & Godfrey, M. M. (2007). *Quality by design: A clinical Microsystems approach*. San Francisco: Jossey-Bass.

New York State Department of Health (NYDH). 2012. Guidelines for adult diabetes (DM) care. Retrieved from https://www.health.ny.gov/publications/0923.pdf

Ohman-Strickland, P., Orzano, A., Hudson, S., Solberg, L., DiCiccio-Bloom, B., O'Malley, D., Tallia, A., Balasubramanian, B., & Crabtree, B., (2008). Quality of diabetes care in family medicine practices: influence of nurse practitioner and physician assistants. *Annals of Family Medicine, 6*(1), 14-22.

Parvizi, J., Tarity, T., Conner, K., & Smith, J. B. (2007). Institutional review board approval: why it matters. *Journal of Bone and Joint Surgery*, *89A*(2), 418-426.

Pastel, L., Lui, S. Homa, K., Bradley, E., & Batalden, P. (2009). Bridges to excellence. Improving care for patients with diabetes at a rural primary care clinic by empowering licensed nursing assistants with a flow sheet tool. *Clinical Diabetes, 27*(3), 115-118.

Patasi, B., & Conway, J. (2008). Enhancing diabetes care in family practice: a flow sheet. *Canadian Family Physician, 54*(9) 1237-1238.

Polit, D., (2010). *Statistics and Data Analysis for Nursing Research* (2nd ed.). New Jersey: Person Education Inc.

Polit, D., & Tatano Beck, C. (2014). *Essential of Nursing Research, Appraising Evidence for Nursing Practice* (8th ed.). New York, Lippincott Williams & Wilkins.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon, MCB University Press, 9*(5), 1-6. Retrieved from http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf

Rabi, D., Edwards, A., Southern, D., Svenson, L., Sargious, Pm, Norton, P. & Ghali, W. (2006) Association of socioeconomic status with diabetes prevalence and utilization of diabetes care serves. *Bio Med Central Health Services Research, 9*(124).

Robert Wood Johnson Foundation. (2009). Illness and injury can lead to bankruptcy. Retrieved from http://www.rwjf.org/en/research-publications/find-rwjf-research/2009/10/illness-and-injury-can-lead-to-personal-bankruptcy.html

Rogers, E. (2003). *Diffusion of Innovations* 5th ed. New York: Free Press.

Ruoff, G., & Gray, L. (1999). Using a flow sheet to improve performance in treatment of elderly patients with type 2 diabetes. *Family Medicine, 31*(5), 331-335.

Samaritan House. (2013a) Neighbor Helping Neighbor fact sheet. Retrieved from http://69.195.124.55/~samariu6/wp-content/uploads/2013/02/FactSheet2012.pdf

Samaritan House (2013b). *Annual Report 1-16.* Retrieved from http://samaritanhousesanmateo.org/wp-content/uploads/2013/02/SH-Annual-Report-with-edits-for-website.pdf

San Mateo County Health Department. (2009). A report on the first year of the San Mateo county adult coverage initiative and systems redesign for adult medicine clinic care. Retrieved from http://www.urban.org/uploadedpdf/411928_areportonthefirstyear.pdf

Saydah, S., & Lochner K. (2010). Socioeconomic status and risk of diabetes related mortality in the U.S. *Public Health Reports, 125*(3), 377- 388.

Shamseddeen, H., Getty, J., Hamdallah, I., & Ali, M. (2011). Epidemiology and economic impact of obesity and type 2 diabetes. *Surgical Clinics of North America, 91*(6), 1163-1172.

Shaw, R., McDuffie, J., Hendrix, C.; Edie, A., Lindsey-Davis, L., Nagi, A., Kosinski, A., & Williams, J. (2014). Effects of nurse managed protocols in the outpatient management of adults with chronic conditions. *Annals of Internal Medicine, 161*(2), 113-122.

Szanton, S., Taylor, H., & Terhaar, M. (2013). Development of an institutional review board preapproval process for Doctor of Nursing Practice students: process and outcome. *Journal of Nursing Education, 52*(1), 51-55.

The Diabetes Control and Complications Trail Research Group. (DCCT). (1993). The effect of intensive treatment of diabetes n development and progression of long-term complications in insulin dependent diabetes mellitus. *New England Journal of Medicine*, *329*(14), 977-986.

The Epidemiology of Diabetes Interventions and Complications. (1999). *Diabetes Care, 22(*1), 99-111.

The Healthy Community Collaborative of San Mateo County. (2011). Community assessment health & quality of life in San Mateo County. Retrieved from ttp://www.plsinfo.org/healthysmc/pdf/Community%20%20Assessment_2011_FINAL1.pdf

Tobias, D., Pan, A. Jackson, C., O'Reilly, J. Ding, E., Willett, W., Manson, J., & Hu, F. (2014). Body mass index and mortally among adults with incident type 2 diabetes. *The New England Journal of Medicine, 370*(3), 233-244.

United Kingdom Prospective Diabetes Study (UKPDS). (1999). Intensive blood glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type II diabetes. *Lancet,* (354), 837-853.

University of Michigan Health System (UMHS). (2014).Management of type II diabetes Mellitus. Retrieved from http://www.med.umich.edu/1info/fhp/practiceguides/diabetes/dm.pdf

University of Regina. (2011). Exchanging knowledge, a research dissemination toolkit. Retrieved from file:///C:/Users/steve/Downloads/218.pdf

University of San Francisco. (2014a). Institutional mission, vision and core values. Retrieved from http://www.usfca.edu/Provost/Institutional_Assessments/USF_Institutional_Mission,_Vision,___Core_Values/

University of San Francisco. (2014b). School of Nursing in Health Professions vision, mission, and core values. Retrieved from http://www.usfca.edu/catalog/nursing/vision/

Walker, J., Livingstone, S., Colhoun, H., Lindsay, R., McKnight, J., Morris, A., Petrie, J., et al. (2010). Effect of socioeconomic status on mortality among people with type 2 diabetes. *Diabetes Care, 34*(5), 1127-1862.

Waxman, K. T. (2008). *A practical guide to finance and budgeting: Skills for nurse mangers*. Marblehead, MA: HCP

Waxman, K. T. (2013). *Financial and business management for the Doctor of Nursing Practice*. New York: Springer.

White, B. (2000). Improving patient care: Using flow sheet to improve diabetes care. *Family Practice Management, 7*(6), 60-62.

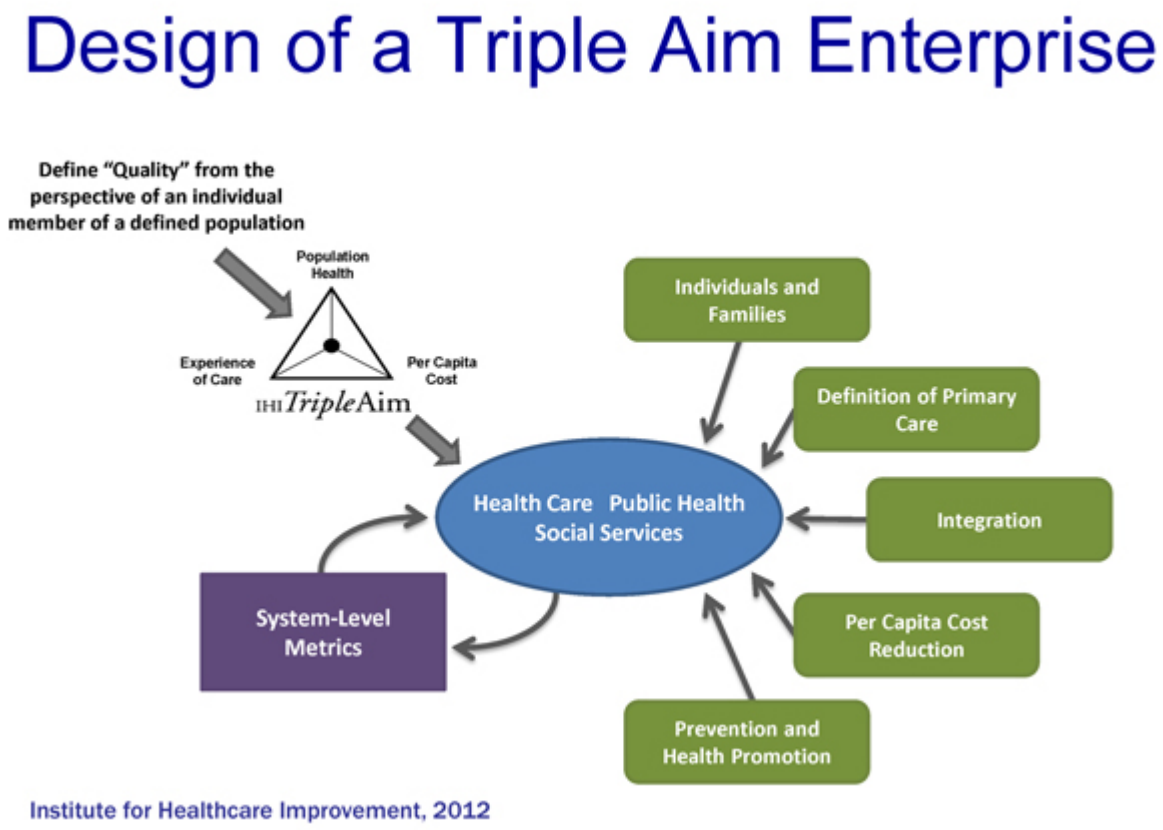
Willens, D., Cripps, R. Wilson, A., Wolff, K., & Rothman, R. (2011). Interdisciplinary team care for diabetic patients by primary care physician, advanced practice nurse and clinical pharmacists. *Clinical Diabetes, 29*(2), 60-68.

Wolfgang K. (2014). 2013 National salary survey results. *Advanced Healthcare Network for NPs & PAs*. Retrieved from http://nurse-practitioners-and-physician-assistants.advanceweb.com/Features/Articles/2013-National-Salary-Survey-Results.aspx

World Health Organization. (2013). About diabetes, type I diabetes. Retrieved from http://www.who.int/diabetes/en/

Appendix A

The IHI Triple Aim Initiative



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http://www.ihi.org/Engage/Initiatives/TripleAim/pages/default.aspx

Appendix B

USFSONHP – Vision and Mission[3]

Vision

The School of Nursing & Health Professions at the University of San Francisco advances the mission of the University by preparing health professionals to address the determinants of health, promote policy and advocacy and provide a moral compass to transform health care in order to further equity and positively influence quality, delivery, and access.

Mission

The mission of the School of Nursing & Health Professions (SONHP) is to advance nursing and health professions education within the context of the Jesuit tradition. The school uses dynamic and innovative approaches in undergraduate and graduate education to prepare professionals for current and future practice domains. The goal is to effectively link classroom, clinical and field experiences with expectations for competence, compassion, and justice in health care, protection and promotion within the context of the highest academic standards.

[3] http://www.usfca.edu/nursing/mission/

Appendix C

USFSONHP – Values[4]

Congruent with the core values of the university, the values of the School of Nursing and Health Professions are to:

- Create and maintain an environment that promotes excellence in the nursing academic endeavor based on: mutual respect, transparency, collaboration, professionalism, creativity, diversity, cultural sensitivity and spirituality.
- Demonstrate the personal values of: integrity, academic excellence, respect for self and others, compassion and caring, personal growth, responsibility, and accountability, professionalism, a passion for justice, and personal health and well-being.
- Positively influence nursing practice and health care environments by promoting: health and wellness, holistic, patient-centered care, patient advocacy, a spirit of inquiry and evidence-based practice, safety and quality improvement, cost effective care, emerging technologies balanced with a humanistic approach, professional and ethical decision-making, increased access to care, especially for vulnerable populations, an effective public health infrastructure, and, lifelong learning.

The mission, vision, and values of the School of Nursing & Health Professions are included in the graduate and undergraduate student handbooks. Additionally, they are incorporated into the graduate and undergraduate curricula and are integral components of the student evaluation process. Students implement the mission, vision, and values of the School of Nursing and Health

[4] http://www.usfca.edu/nursing/mission/

Professions in their end-of-program evaluations, course evaluations for practice experiences, course testing, and end-of-course competencies and outcomes.

Appendix D

Hierarchy of Evidence Strength Table

Table 1

Strength Rating System for the Hierarchy of Evidence/Levels of Evidence

Level I	Evidence for a systematic review or meta-analysis of all relevant RCTs or evidence-based clinical practice guidelines based on systematic reviews of RCTs.
Level II	Evidence obtained from at least one well-designed RCT.
Level III	Evidence obtained from one well-designed controlled trials without Randomization.
Level IV	Evidence from well-designed case-control and cohort studies.
Level V	Evidence from systematic reviews of descriptive or qualitative study.
Level VI	Evidence from single descriptive or qualitative study.
Level VII	Evidence from the opinion of authorities and/or reports of expert committees.

Melnyk and Fineout-Overholt (2011, p12)

Appendix E

Evaluation Table

Evidence-based question: What is the impact of a flow sheet / Algorithm on type II diabetics care?

Author, Date, &Title	**Evidence Type**	**Sample, Size & Setting**	**Study findings, implications that help answer the EBP question**	**Limitations**	**Evidence Strength Level, & Quality**
Hempel, (1990). Physician documentation of diabetes care: use of a diabetes flow sheet and patient education clinic	One year **Comparative study:** using a two intervention design; a diabetic flow sheet (using the National Diabetes Advisory Board (NDAB) recommendations) in the pts medical records and individualized weekly patient education from the nurse educator to improve documentation and decrease complications of diabetic (DM) patients.	Hospital community based ambulatory care center including 20,297 active patients with family practice residents and faculty. N= 158 (intervention group), N=45 control group (usual care). Subjects were matched for age, race, and gender.	Significant improvement in physician documentation and patient education with use of a flow sheet between control and intervention groups. Ophthalmology (greatest improvement) referral increased from 22% to 46 %, lower extremity exams increased from 36% to 61 %, nutritional education documentation increased from 51% to 69 %, diabetes education increased from 31% to 61%, and urine analysis increased from 58% to 77%.	Small sample size and single setting limits generalizabilty. Measured physician changed behavior not patient behavior change. Lack of concurrent random control group. Medical residents not representative sample since they are being evaluated for school. Selective bias since not all DM charts had flow sheets on initial intervention. Improvement could be based on heightened awareness since	**Strength IV:** A one year Family Practice **c**omparative study from a well designed cohort. Matched subjects using computer system. Authors used the NDAB guidelines. **Quality B:** Good quality, statistically significant results of improvement, NDAB guidelines are evidence based.

				staff knew of participation in DM study	
Ruoff & Gray, (1999). Using a flow sheet to improve performance in treatment of elderly patients with type II diabetes.	**Comparative study;** after a baseline analysis staff inserted the American Diabetic Association (ADA) flow sheet into pts charts with recommended guidelines. For three months staffs were in-serviced and educated on the flow sheet. After 3 months charts were evaluated and compared from baseline	Study conducted at community based single family practice group with 17 physicians in Michigan. All subjects were 65 yrs or older (mean age 72 yrs). Started with N=114, decreased to N=109 who received care during the three month flow sheet intervention. The post intervention sample was the same subjects.	The flow sheet served as documentation and reminder tool which lead to increased physician awareness but not necessary independently related to increased performance and education in diabetes care with improved use of a flow sheet in medical records. Additionally increase compliance with six of the seven quality measures. Two comparisons were completed using two tailed Pearson chi squared tests 1) baseline and post project sample and 2) compared the fact flow sheet inserted in all records but not always used.	Decreased generalizablity because it was a single family practice setting where patients were Medicare enrollees and the physicians were experienced in research and QI projects.	**Strength IV: W**ell designed cohort **Quality B:** Sufficient sample size, some control, reasonably consistent conclusions based on scientific data analysis
White, (2000). Improving patient care, using flow sheets to improve diabetes care	13 month **QI pilot** to redesign care of DM pts with the use of a flow sheet. Later expanded to all sites in the Family Care Network (FCN). Family Health Associates developed a flow sheet (with key DM elements) using	One patient case study described the need of a flow sheet in preface of paper. The QI project pilot first took place at three FCN sites before expanding to the other 14 sites. Initially (few) 3 of the 42 doctors were	The results showed a simple 1 page flow sheet can serve as a visible reminder record and improve care. The pilot at three FCN sites allowed for expansion to the other 14 sites. Final results were flow sheets were in 90 % of charts. Authors share seven tips for successful QI redesign project. Flow sheets worked best when staff shared responsibility/consistently. Practice implications: Tips and steps in the	Only described one patient case. They developed their own flow sheet with targets DM measures but did not specify source	**Strength VII:** Authors made own quality improvement tool using **PDSA**. Performed pilot at three sites. Author describes tips that were helpful and realistic. **Quality C:** Only presented clinical site information. No specification of sample or sample size. Provide

	the PDSA process.	using the flow sheet, which lead to interdisciplinary documentation and a shared responsibility in documentation for success of flow sheet.	resolution and success of a QI redesign improvement project are helpful for a novice embarking on a change in practice project.		reader with tips for successful redesign QI pilot.
Bradley, et al., 2007. Algorithm for complementary and alternative medicine practice and research in type 2 diabetes.	**Systematic review** of over 60 articles from Medline 1975-2006 of available literature on nutritional and botanical medicine in order to create a algorithms	**Subjects NA.** Employed two independent reviewers	Authors summarized the importance of knowing safety and effectiveness in prescriptions and in combination with botanical medicine is largely unknown but authors review, categorize with algorithms. Authors stress the importance of asking and being knowledgeable of the potential harm needs to be considered. Important for health care providers and patients to have a dialogue. Findings and algorithms assist providers in increasing knowledge of available data on medications and botanic treatments with type II diabetes. Authors did address life style, dietary, and stress management in algorithms which is beneficial to diabetic patients.	Limitations: The algorithms are not presently validated with prospective data.	**Strength I:.**Over 30 years of articles in this systematic review with 60 articles **Quality B:** good quality of articles.
Lin, et al., 2007) Improving diabetes management, structured clinic program for	Cohort comparison study over 3 years (2001-2004) where 3 interventions were implemented by a physician and NP 1)30	Primary care setting with 5 GP's and one NP. N=33 (intervention group) and N=35 (control group), following	These 3 intervention improved primary care MD and NP adherence to DM guidelines and clinical outcomes when compared to usual care. At conclusion of follow-up intervention group did not reach guideline target levels (HA1C <	Small cohort, selection bias (only existing clients enrolled), performance bias (not blinded) _	**Strength III:** Well designed without randomization **Quality B :** Good quality reasonably consistent

Canadian primary care	min appointments 2) reminder phone calls and 3) standardized flow sheet) to improved HCP adherence to DM guidelines and improve pt outcomes.	current guidelines. Controlled group drawn from computerized list. No significant difference between groups in demographic, follow up time, baseline lab results and medication use. Only difference between groups was the exclusion of 3 interventions	7%) but did show improvement (7.8% -to 7.1%), Weights, BP, pneumonia/influenza vaccination, and cholesterol did not change significantly in either group. Significant improvement in ophthalmologist referrals 63% compared to 91%.	Not enough time to follow-up, but results encouraging. Can't generalize to other counties because Canadian study.	results
Patasi & Conway, 2008. Enhancing diabetes care in family practice, A flow sheet	Program offered nationwide to support and used the Canadian Diabetes Association clinical practice guidelines (CDPG) as a flow sheet design for family practice with lack of electronic medical records (EMR). The flow sheet at each visit was filled out and faxed to Canadian center for research of diabetes (with pt consent) and template was sent back to conic and had	Rural community practice setting including 25 community practice physician in with N=330 type II diabetic pts. 56 % female, 54 % male DM x 8 years and 43.6 avg age,	Overall participating physician did improve in meeting standard guidelines Comparisons on first and last visit HA1c from 7.9% to 5.6%,	Limits generalizabilty since Canadian study. Compared first and last visit only	**Strength IV:** large cohort and included age and gender information **Quality B :** Good quality

	reminders of co morbidities and core measures and lab results to be entered and check off to include outside target ranges. .				
Ohman-Strickland, et al., (2008). Quality of diabetes care in family medicine practices: influence of nurse practitioners and physician assistants	**Cross sectional** analysis of the baseline data from a QI trial using American Diabetes Association (ADA) guidelines in family medicine practices to assess if there was a difference in the quality of diabetic care depending on practice (NP's, PA's or physician only) via chart audits and staff questionnaires.	N= 864 diabetic patients from 46 family medicine practices (28 physician only sites), 9 with 1 or more PA's and 9 with 1-2 NP's. The 17 PA's and 9 NP's were women. Using ADA guidelines.	NP's perform better than physicians only or those employing PA's especially in regards to diabetes process measures. Urinary micro albumin levels; PA's 6% vs. NP's 32% .Assessing HA1c;. PA's 33%.,NP 66% vs. physician only practices 49% (P< .005). Assessing lipid levels; PA's 58%, NP 80%, physician only 68% (P=.004). 62% providers returned the questionnaire. 452 (out of 732).	NP and PA have different training. Study design precludes connection of patient to a particular clinician but study did explain overall effect of teams on clinicians in family practices on treating patients with diabetes.	**Strength III:** Not randomization but well-designed study using charts audits and survey of staff. **Quality A**: large sample sizes. Adequate control with measurable results of the NP's, PA and physician only practices and the impact of ADA guidelines.
Hahn, et al., (2008). Diabetes flow sheet use associated with guideline adherence.	**Random controlled Cross sectional study** including retrospective review of medical records at clinic that participated in a QI project on diabetic patients using evidence based (National Diabetes	54 primary care sites (New Jersey & Pennsylvania) participated in a quality improvement trial. DM patients were randomly selected from list at each site. Total	Diabetes flow sheets were associated with increase adherence to diabetic guidelines and a valuable tool in improving assessment and treatment, specific to the five assessments. (HA1C, urine micro albumin, LDL/ cholesterol, smoking status and BP), when medical records were reviewed.	There were eligibility criteria for sites to participate. Attainment of target outcomes can be influenced by other factors. Authors' reports	**Strength II** Large sample size and clients randomly selected from each site. **Quality A;** Sufficient sample size, consistent measurable impact and used National guidelines.

	Guidelines, NDG) flow sheet and impact on patient care outcomes.	N=1,016. Authors used National Diabetes Education Program (NDEP) based diabetes guidelines specific to 5 assessments:		cofounders not controlled. Authors don't know which if any trained members on use of flow sheet.	
Moharram, M. & Farahat, F. (2008). Quality improvement of diabetes care using flow sheets in family health practice.	One year (2006-2007) **random controlled** interventional study using DM clinical guidelines from Canada for the goal of improved performance at 7 family practice clinics in Saudi Arabia.	Saudi Arabia, 7 family practice clinics, N= 414. Patient's records were selected by systematic random sampling and evaluated on nine quality improvement indicators.	The flow sheet demonstrated consistent improvement in core measures. significant improvement in detecting BMI, HA1C, micro albumin, lipids, referrals to ophthalmology for retinal exams, peripheral neuropathy exams, and improved quality of care for not only diabetics but also other chronic conditions.	Not generalizable to United States due to population and cultural influences.	**Strength II:** Yearlong with well designed RCT sing systematic random sampling **Quality A :** Used EBP tool
Pastel, et al. (2009). Bridges to excellence. Improving care for patients with diabetes at a rural primary care clinic by empowering licensed nursing assistants with a flow sheet tool.	**Single cohort study** to redesign care for diabetic patients through a flow sheet that addressed 7 diabetic core measures that were evidence based, reliable, and engaged front line staff in assessing the gaps in completion of care and creating a system that ensured documentation.	Large East coast clinic (well educated and affluent population) affiliated with a medical center that that specializes in adult preventive care of common, complex, and chronic medical conditions. Patient population of 4,500. N= 789 diabetic patients .	Having front line staff implement flow sheet: Pneumonia vaccines increased from 73% to 93%, foot exams increased from16% to 65%, HA1C (less than 7) increased from 53% to 62%, cholesterol LDL (LDL<130) increased from 80%-86% (P< 0 .05). Regardless; having front line staff take ownership in the flow sheet allowed sustainability by anchoring the process change into daily work load.	No control group. Improvement determined from baseline data. Concern possible misidentified diabetic because not based on clinical data but rather chart coding. Not generalizable to lower socio economic	**Strength IV:** Well designed cohort study. but concern for computer generated DM coding and socio economic status of population but results support previous studies **Quality B:** Demonstrated consistent results and used a EBP flow sheet

				population since subjects from affluent population.	
Cole, et al., 2009. An algorithm for the care of type 2 diabetes	Partner health care system PHCS presented algorithm based on ADA clinical guidelines and addressed frequently asked questions.	PCS is network of academic and community hospitals in Massachusetts affiliated with physician group: 1214 primary care provider in net work and majority care for diabetic related cases.	Presentation of algorithm used in the partners healthcare system (PCS) that is based on recommendation consistent with EBP literature and most recent ADA clinical practice guidelines with additional addendums of frequently asked questions and primary and secondary goals of each algorithms.		**Strength: V** **Quality A:** The flow sheet is supported by the ADA clinical practice guidelines.
Willens, et al., 2011 Interdisciplinary team care for diabetic patients by primary care physician, advanced practice nurse and clinical pharmacists.	**Randomized trial** from 2/2001- 4/2003 where intervention group received education and medication via EBP algorithms. Pharmacy management and followed by primary care, and control group received usual care.	At a academic general internal medicine practice (faculty and residents). Patients N= 217 with type II DM and HA1C >8, were randomized to intervention or control group ..	This interdisciplinary model approach through collaboration with primary care physicians using algorithm showed improvement from baseline to 12 months: intervention; HA1C improved 2.5% control, 1.6% intervention. Intervention; Systolic BP decrease 7 mmHg, control increase 2 mmHg. Diastolic BP; intervention, decreased 4mm Hg; control, increase 1 mmHg. Conclude: Structured care process / algorithms for primary care physicians and nurse practitioners working in teams can improve DM pt care and clinical outcomes. Also notable was increase in	Patients were recruited by provider referral. The algorithms were developed with input from physician and approved by clinic leadership, physicians could chose whether they wanted to receive medication adjustment	**Strength II:** Result of one well designed RCT over 2 years. **Quality B: A**dequate sample size. Algorithm developed by the providers

			pt satisfaction in intervention group. Algorithm based DM care can improve HA1c, pt satisfaction , and improve clinical outcomes.	recommendation from pharmacist or be notified after changes made.	

Strength of Evidence (Melnyk & Fineout-Overholt textbook p.12)

Quality of the Evidence (JHNEBP Evidence Appraisal) Retrieved from, http://lgdata.s3-website-us-east-1.amazonaws.com/docs/1128/822054/Individual_Evidence_Summary_Tool.pdf

Appendix F

BMI chart

Body Mass Index (BMI) Chart for Adults

Obese (>30) | Overweight (25-30) | Normal (18.5-25) | Underweight (<18.5)

HEIGHT in feet/inches and centimeters

WEIGHT		4'8"	4'9"	4'10"	4'11"	5'0"	5'1"	5'2"	5'3"	5'4"	5'5"	5'6"	5'7"	5'8"	5'9"	5'10"	5'11"	6'0"	6'1"	6'2"	6'3"	6'4"	6'5"
lbs	(kg)	142cm		147	150	152	155	157	160	163	165	168	170	173	175	178	180	183	185	188	191	193	196
260	**(117.9)**	**58**	**56**	**54**	**53**	**51**	**49**	**48**	**46**	**45**	**43**	**42**	**41**	**40**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**32**	**31**
255	(115.7)	57	55	53	51	50	48	47	45	44	42	41	40	39	38	37	36	35	34	33	32	31	30
250	**(113.4)**	**56**	**54**	**52**	**50**	**49**	**47**	**46**	**44**	**43**	**42**	**40**	**39**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**30**
245	(111.1)	55	53	51	49	48	46	45	43	42	41	40	38	37	36	35	34	33	32	31	31	30	29
240	**(108.9)**	**54**	**52**	**50**	**48**	**47**	**45**	**44**	**43**	**41**	**40**	**39**	**38**	**36**	**35**	**34**	**33**	**33**	**32**	**31**	**30**	**29**	**28**
235	(106.6)	53	51	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	29	29	28
230	**(104.3)**	**52**	**50**	**48**	**46**	**45**	**43**	**42**	**41**	**39**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**30**	**29**	**28**	**27**
225	(102.1)	50	49	47	45	44	43	41	40	39	37	36	35	34	33	32	31	31	30	29	28	27	27
220	**(99.8)**	**49**	**48**	**46**	**44**	**43**	**42**	**40**	**39**	**38**	**37**	**36**	**34**	**33**	**32**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**
215	(97.5)	48	47	45	43	42	41	39	38	37	36	35	34	33	32	31	30	29	28	28	27	26	25
210	**(95.3)**	**47**	**45**	**44**	**42**	**41**	**40**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**28**	**27**	**26**	**26**	**25**
205	(93.0)	46	44	43	41	40	39	37	36	35	34	33	32	31	30	29	29	28	27	26	26	25	24
200	**(90.7)**	**45**	**43**	**42**	**40**	**39**	**38**	**37**	**35**	**34**	**33**	**32**	**31**	**30**	**30**	**29**	**28**	**27**	**26**	**26**	**25**	**24**	**24**
195	(88.5)	44	42	41	39	38	37	36	35	33	32	31	31	30	29	28	27	26	26	25	24	24	23
190	**(86.2)**	**43**	**41**	**40**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**26**	**26**	**25**	**24**	**24**	**23**	**23**
185	(83.9)	41	40	39	37	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	23	22
180	**(81.6)**	**40**	**39**	**38**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**24**	**23**	**22**	**22**	**21**
175	(79.4)	39	38	37	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21
170	**(77.1)**	**38**	**37**	**36**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**24**	**23**	**22**	**22**	**21**	**21**	**20**
165	(74.8)	37	36	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21	20	20
160	**(72.6)**	**36**	**35**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**24**	**23**	**22**	**22**	**21**	**21**	**20**	**19**	**19**
155	(70.3)	35	34	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	20	20	19	19	18
150	**(68.0)**	**34**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**23**	**23**	**22**	**22**	**21**	**20**	**20**	**19**	**19**	**18**	**18**
145	(65.8)	33	31	30	29	28	27	27	26	25	24	23	23	22	21	21	20	20	19	19	18	18	17
140	**(63.5)**	**31**	**30**	**29**	**28**	**27**	**26**	**26**	**25**	**24**	**23**	**23**	**22**	**21**	**21**	**20**	**20**	**19**	**18**	**18**	**17**	**17**	**17**
135	(61.2)	30	29	28	27	26	26	25	24	23	22	22	21	21	20	19	19	18	18	17	17	16	16
130	**(59.0)**	**29**	**28**	**27**	**26**	**25**	**25**	**24**	**23**	**22**	**22**	**21**	**20**	**20**	**19**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**
125	(56.7)	28	27	26	25	24	24	23	22	21	21	20	20	19	18	18	17	17	16	16	16	15	15
120	**(54.4)**	**27**	**26**	**25**	**24**	**23**	**23**	**22**	**21**	**21**	**20**	**19**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**15**	**14**
115	(52.2)	26	25	24	23	22	22	21	20	20	19	19	18	17	17	16	16	16	15	15	14	14	14
110	**(49.9)**	**25**	**24**	**23**	**22**	**21**	**21**	**20**	**19**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**15**	**14**	**14**	**13**	**13**
105	(47.6)	24	23	22	21	21	20	19	19	18	17	17	16	16	16	15	15	14	14	13	13	13	12
100	**(45.4)**	**22**	**22**	**21**	**20**	**20**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**14**	**14**	**14**	**13**	**13**	**12**	**12**	**12**
95	(43.1)	21	21	20	19	19	18	17	17	16	16	15	15	14	14	14	13	13	13	12	12	12	11
90	**(40.8)**	**20**	**19**	**19**	**18**	**18**	**17**	**16**	**16**	**15**	**15**	**15**	**14**	**14**	**13**	**13**	**13**	**12**	**12**	**12**	**11**	**11**	**11**
85	(38.6)	19	18	18	17	17	16	16	15	15	14	14	13	13	13	12	12	12	11	11	11	10	10
80	**(36.3)**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**14**	**14**	**13**	**13**	**13**	**12**	**12**	**11**	**11**	**11**	**11**	**10**	**10**	**10**	**9**

Note: BMI values rounded to the nearest whole number. BMI categories based on CDC (Centers for Disease Control and Prevention) criteria.

www.vertex42.com BMI = Weight[kg] / (Height[m] x Height[m]) = 703 x Weight[lb] / (Height[in] x Height[in])

http://www.vertex42.com/ExcelTemplates/bmi-chart.html

Appendix G

Rogers's Diffusion of Innovation

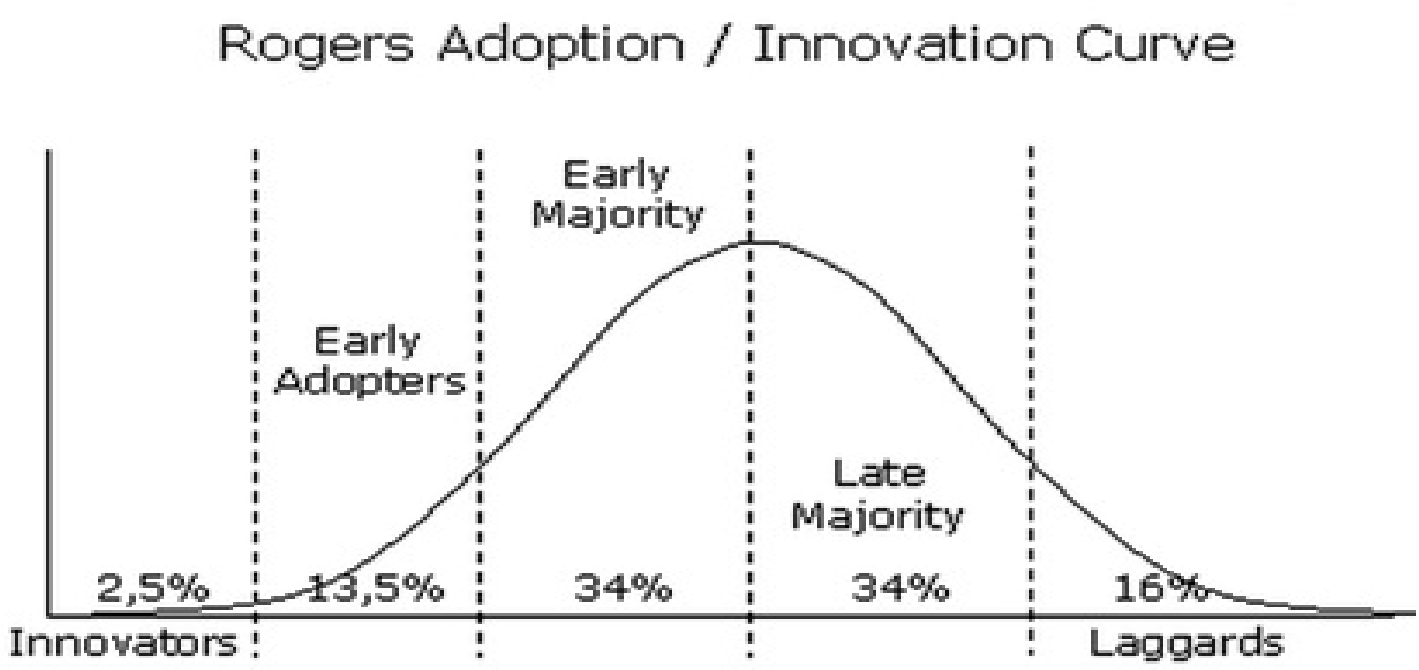
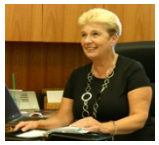


Figure 1. Rogers' Diffusion of Innovations theory adoption/innovation curve

NP /DNPc	Program Directors	Clinical advisory committee	Front line staff	RWC and SM Clinics
				

Five Steps When Adapting to Innovation

Knowledge

- Knowledge of problem/Gaps in meeting core measures from 1/2014 audits

- Knowledge of DynaMed site that provides the most recent evidence based point of care data/tools.

Persuasion

- Meet with director of program operations and discuss advantages of EBPDFS
- Advise director of program operations the benefits of an EBPDFS and future National certification
- Increase staff buy-in to EBPDFS

Decision

- Staff initially rejected first EBPDFS
- Staff wanted a sense of ownership in EBPDFS
- Clinical Advisory Committee facilitated staff feedback for format changes in final flow sheet
- Administration chooses NCQA flow sheet

Implementation

- August, 2014 implementation of EBPFS in San Mateo diabetic charts

Confirmation

- Monthly chart audits September, October, November 2014

Appendix H

Letter of support

March 24, 2014

To Whom It May Concern:

The Samaritan House Free Clinic is committed to delivering high quality health care. Quality Assurance (QA) is the process we use to ensure that prudent quality control measures have been established and the desired quality in a deliverable or service provided at the clinic is achieved. Kathy Grimley-Baker ‘s NCQA DM project is an integral component of our annual plan of performing quality activities and verifying compliance with clinical standards.

The purpose of this plan is to provide a framework to ensure that:

• Quality work is consistently performed and that quality deliverables are consistently produced.

• Project continuity occurs in record-keeping and document review.

• Orderly procedures are established to provide QC for medical conclusions, and determinations.

• Project documents have undergone the necessary technical review, and findings are presented to the Samaritan House Clinical Advisory Committee for review and action.

With the help of volunteer professionals like Kathy, our San Mateo and Redwood City Free Clinics, are able to continue to provide quality health care to more than 11,000 patients a year.

Sincerely,

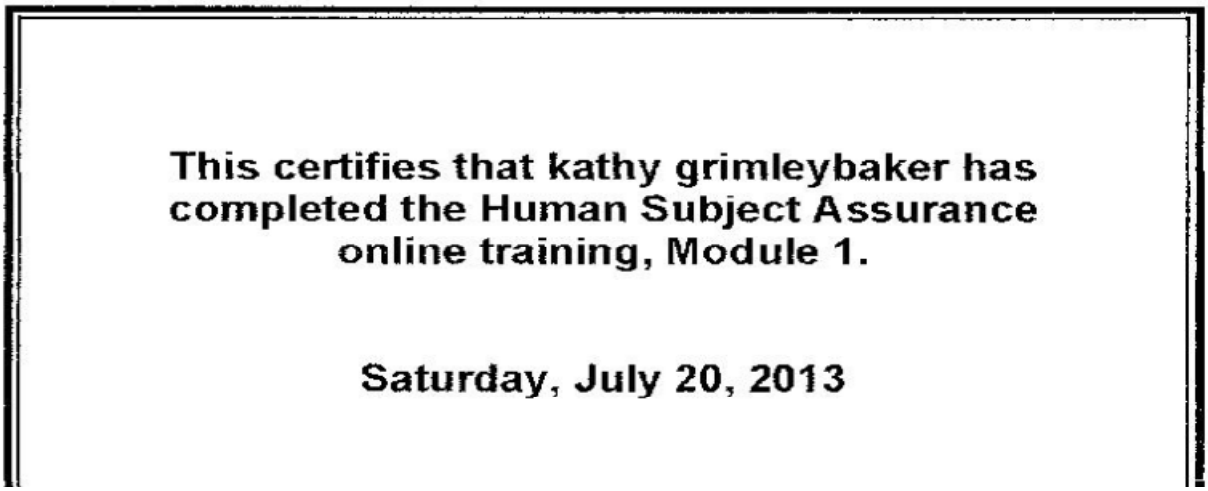
Sharon Petersen

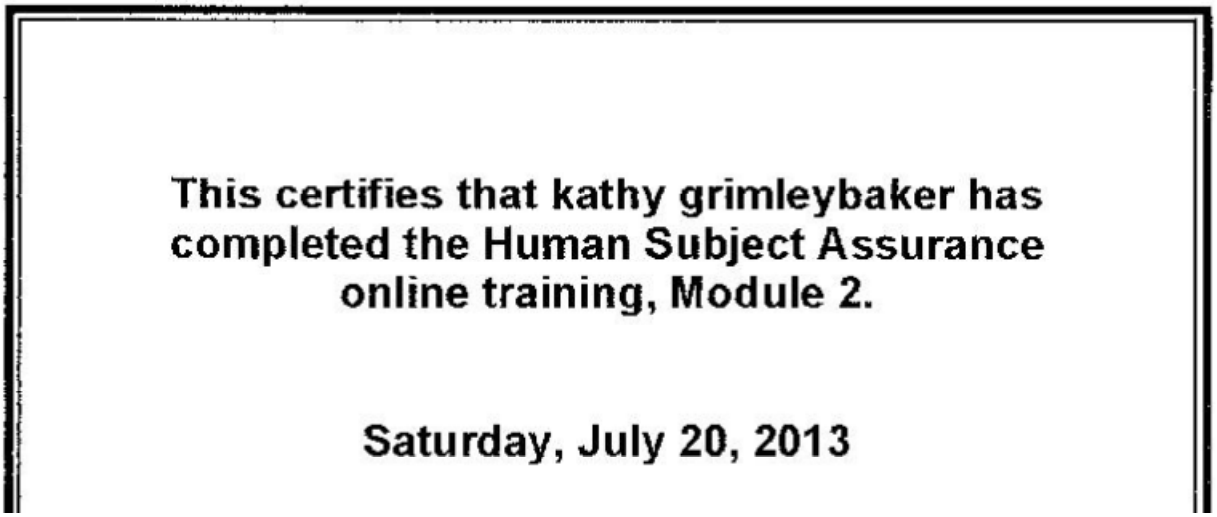
Director of Operations

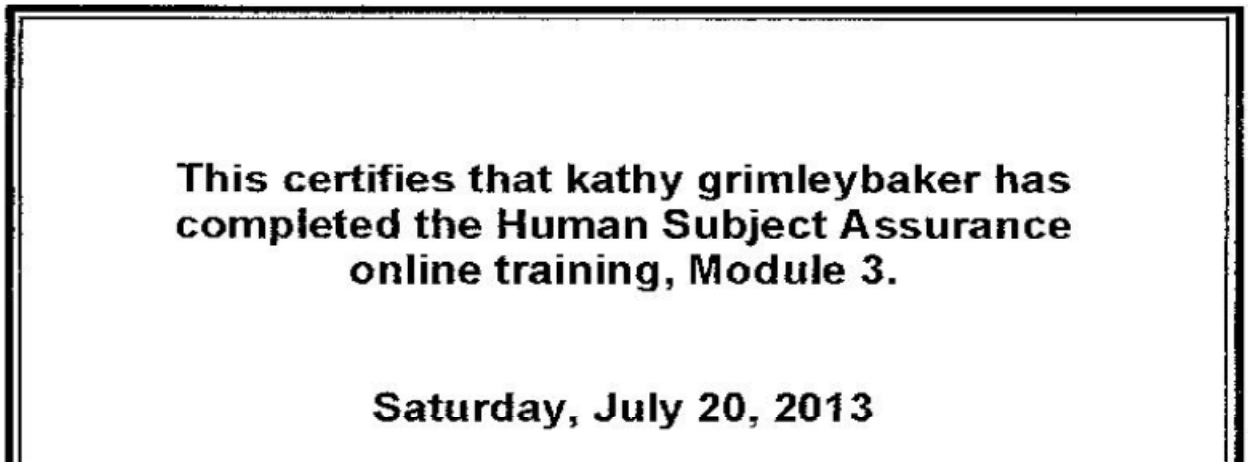
Samaritan House

Appendix I

Ethics modules







Appendix J

Student Project Approval: Statement of Determination

Student Name: Kathy Grimley Baker

Title of Project: The impact of an evidence based practice (EBP) diabetic flow sheet (DFS) on the uninsured adult type II diabetic patients seeking care at community based outpatient free clinics.

Brief Description of Project:

A) Aim Statement: From June to August 2014 San Mateo Samaritan House Clinic nurse practitioner (NP) will implement an EBP DFS that will be evaluated and expanded to the Redwood City clinic in September 2014 in order to improve the clinics' gaps in meeting three diabetic core measures: obesity (body mass index, BMI), blood pressure control, and HA1c control.

B) Description of Intervention: The Agency for Healthcare Research in Quality (AHRQ) noted that implementation of type II diabetes guidelines are complex and challenging, and it is more efficient to focus on a limited number of improvement goals (AHRQ, 2012). This quality improvement (QI) project will focus on the three largest gaps in caring for type II diabetic patients that were discovered during January 2014 retrospective chart audits: obesity, blood pressure control, and HA1c control. The DFS will be located in the front of every diabetic chart for all multidisciplinary team members (MDTTM) to view, utilize, update, and make timely referrals with each client visit. Having the DFS at the front of every adult type II diabetic patient's chart will allow immediate visual access and documentation for the next MDTTM that cares for the

patient in order to maintain quality care in meeting diabetic core measures.

C) How will this intervention change practice? The implementation of a DFS will enact great change in clinical practice at the Samaritan House Clinics in many ways. First, because there are no electronic medical records (EMR) and the clinic uses pen and paper charts, this one page will save time in reviewing a patient's chart by allowing a more streamlined management of care with a one page "go to" section that all providers can view. Second, this one page view allows MDTTM the ability to assess the patient's ability to achieve the core measure goals and meet timelines. Third, the DFS will decrease fragmentation of care by enhancing documentation and communication between all providers that care for the diabetic patient. The retrospective January2014 chart audits revealed obesity across the board with BMIs up to 45 percent. Half of all patients had had poor HA1c control, and another 25 percent had fair HA1c control. Almost half of all patients had poor blood pressure control. These three core measures have been shown to increase mortality, morbidity and complications. A DFS will allow patients at the Samaritan House Clinics to receive coordinated care, thereby improving outcomes, decreasing complications and improving quality of life.

D) Outcome measurements: Outcomes will be measured through monthly chart audits to find the percentage of patients who achieve the three diabetic outcomes: decrease in BMI (obesity), controlling HA1c (less than eight), and controlling blood pressure (less than 130/90).

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project,

the criteria outlined in federal guidelines will be used.[5]

X This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

This project involves research with human subjects and must be submitted for IRB approval before project activity can commence. Comments:

[5] http://answers.hhs.gov/ohrp/categories/1569

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title:	**YES**	**NO**
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	**X**	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	**X**	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	**X**	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**X**	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**X**	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	**X**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	**X**	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	**X**	
If there is an intent to, or possibility of publishing your work, you and	**X**	

supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."*

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME Kathy Grimley-Baker

Signature of Student: Kathy Grimley-Baker RN, MS, NP, CNL

SUPERVISING FACULTY NAME Karen Van Leuven

Signature of Supervising:_____DATE_____

Appendix K

NCQA core measures Version I

DM measure	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
HbA1c: Poor control (>9%)												
HbA1c: Fair control <8%												
HbA1c: Good control <7%												
Blood Pressure: Poor control ≥140/90 mm Hg												
Blood Pressure: Control <130/80 mm Hg												
WGT/ BMI												
ANNUAL												
Eye Examination												
Smoking Status and Cessation												
LDL: Poor control ≥130 mg/dl												
LDL: Control <100 mg/dl												
Nephropathy Assessment												
Foot Examination												

EBPDFS Version II

NAME:

ANNUAL CHECKS						
Eye Examination						
Smoking Status and Cessation						
LDL: Poor control ≥130 mg/dl						
LDL: Control <100 mg/dl						
Nephropathy Assessment						
Foot Examination						
Height						
WGT						
BMI						

DM measure						
HbA1c: Poor control (>9%)						
HbA1c: >8 <9						
HbA1c: Fair control <8%						
HbA1c: >8 <7						
HbA1c: Good control <7%						
Blood Pressure: Poor control ≥140/90						
Blood Pressure: control ≥130/90						
Blood Pressure: Control <130/80						
Nutritionist						
Nutrition group						
Co Morbidities						

EBPDFS Version III

NAME:

ANNUAL CHECKS						
Eye Examination						
Dental Examination						
Smoking Status and Cessation						
LDL: Poor control ≥130 mg/dl						
LDL >100 and <.130						
LDL: Control <100 mg/dl						
Nephropathy Assessment						
Foot Examination						
Height						
WGT						
BMI						
Obese >30						
Overweight 25-30						
Normal 18.5-25						
DM measure						
HbA1c: Poor control (>9%)						
HbA1c: >8 and <9						
HbA1c: Fair control <8%						
HbA1c: >7 and <8						
HbA1c: Good control <7%						
BUN and CREATIN						
BUN						
Creatine						
Blood Pressure: Poor control ≥140/90						
Blood Pressure: control ≥130/90						
Blood Pressure: Control <130/80						
Nutritionist						
Nutrition group						
Co Morbidities						

Appendix L

Failure Mode and Effects Analysis (FMEA)

Process Steps	Failure Mode - What	Failure Causes - Why	Likelihood of Occurrence	Likelihood of Detection	Severity	Risk Priority Number	Actions to Reduce Occurrence of Failure
			(1–10)	(1–10)	(1–10)	(RPN)	
1	EBPDFS won't be in chart	Staff not understand the importance = unsuccessful	5	1	10	50	Allow staff to take an active role in revising the format of the EBPDFS
		It is a new change/easy to forget					In-service staff prior to implementation
							DNP student present at clinic during roll out
							Chart checks for EBPDFS when charts pulled day before appointments
2	Staff won't use the EBPDFS	Staff won't know how to use EBPDFS	5	3	9	135	In-service front line staff on EBPDF before, during, and after rollout
		Staff won't know their role responsibly in EBPDFS					Coach and assist staff in BMI calculation or location of cheat sheet
		Staff not confident in calculating BMI					Positively reinforce any and all efforts by staff
							DNP increase physical presence during rollout
3	Staff won't know how to use the EBPDFS properly	Decrease knowledge and confidence in use					
		Change is difficult	5	2	10	100	Take increase time with front line staff especially pre implementation
							Demonstrate and + reinforce efforts by staff to document
							Practice BMI calculation prior to roll out
							Ask staff for return demonstration of BMI

Appendix M

Annual Cost to Sustain Project

Indirect Cost	2015	2016
Paper	$0.00	$0.00
Xeroxing	$0.00	$0.00
Clerical Staff	$0.00	$0.00
Parking	$0.00	$0.00
Interpreter Services	$0.00	$0.00

Direct Cost	2015	2016
DNP Hourly Wage	$74.00	$76.22
Total .2 FTE – (2weeks pay)	$1,184.00	$1,219.52
Annual Cost to sustain Project	$30,784.00	$31,707.52

Appendix N

Responsibility and Communication Matrix

Responsibility /communication Matrix	DNP/PM	Administration	Clinical Advisory Committee	Front line team members
Audit charts for gaps in meeting core measures	R	S	S	S
Present EBPDFS tools	R/I	S	S	S
Choose EBPDFS for clinic	S	R/A/I	S	S
Choose format of EBPDFS	S	S	R/I/A	S
In-service staff on EBPDFS	R	S	S	S
Roll out	R	S	S	S/R
Place EBPDFS in all DM charts	R/S	S	S	R
Document in EBPDFS	R/S	S	S	R
R= responsible				
S= Support/Assist				
A=Approves				
I=Informs				

Appendix O

Plan, Do, Study, Act (PDSA) Timeline

Phase 1 (Plan): **December 2013- June 2014**

December: -Met with administrator at Samaritan House clinics.

-Received and documented letter of support from clinic.

January: -Retrospective chart audits at San Mateo clinic with summarized successes, gaps, and ability in meeting diabetic core measures.

-Met with clinic administration with summary report, review the EBP guidelines, and choose one EBPDFS that best fits needs or gaps for the clinics.

February: -Submitted project proposal to USFSON.

March: -Submitted project prospectus to USFSON.

April: -EBPDFS was presented at April staff meeting

May: -Clinical advisory committee works to create final EBPDFS

June: -Clinical advisory committee works to create final EBPDFS

Phase 2 (Do): July 2014- August 2014

July: -Clinical advisory committee continues to work on final EBPDFS

-Prior to roll out of EBPDFS staff in-services at San Mateo Samaritan House.

August: -Pilot begins at San Mateo Samaritan house

-Increase DNP student presence and support

Phase 3 (Study): September 2014

September: -Monthly chart audits.

-Review and collate monthly chart audits

-Collate multidisciplinary feedback form to evaluate the EBPDFS.

Phase 4 (Act): October – December 2014

October: -Audits of chart with summary

-Survey multidisciplinary staff for satisfaction and suggested improvements

November: **-**Audits of chart and provide summary to administration

December: -Anticipate expansion of EBPDFS to Redwood City clinic

-Revisit funded position / financial support for a .2 FTE NP position to sustain the project by means of a diabetic clinic one day a week at Redwood City and San Mateo.

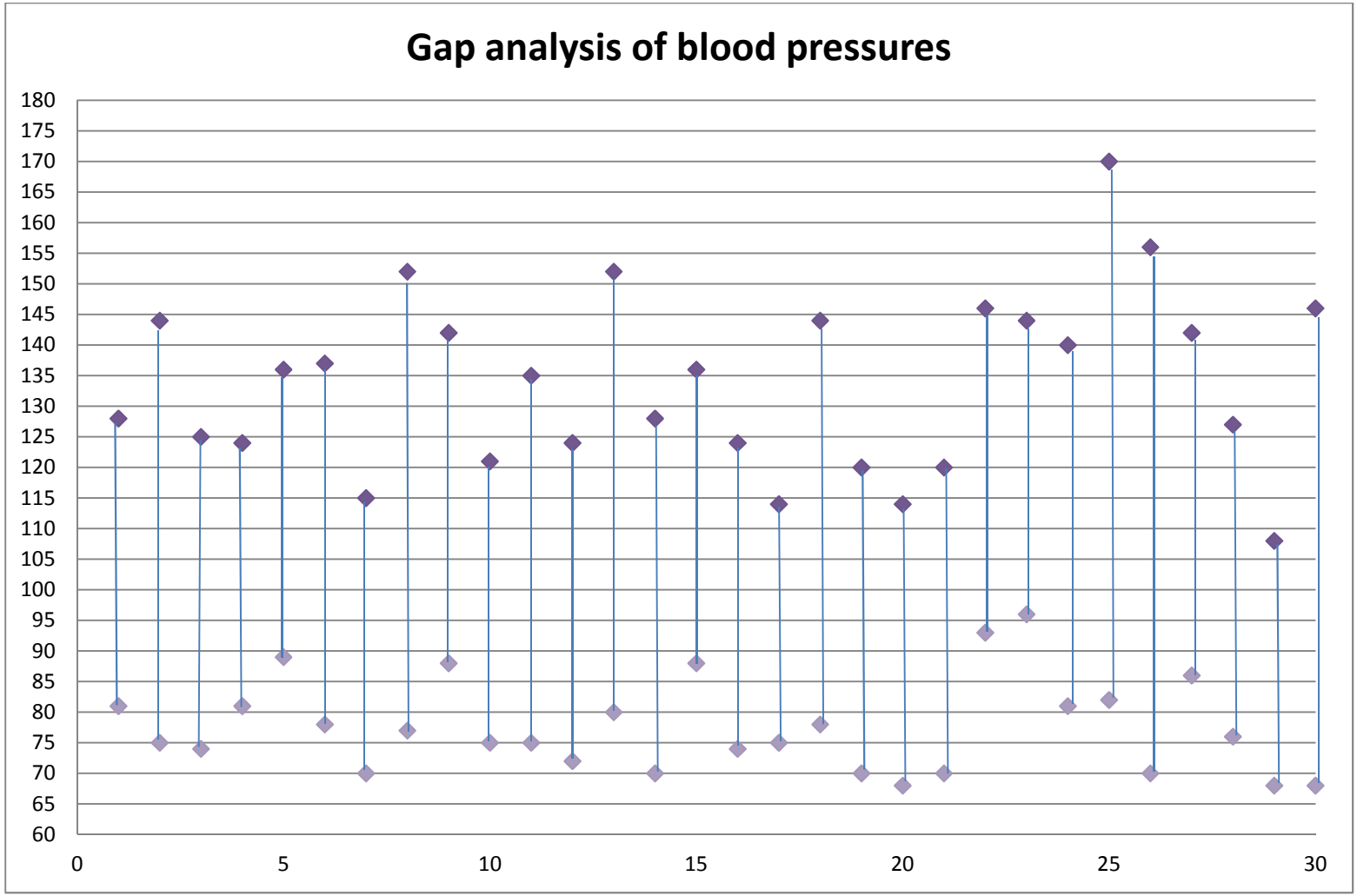
Appendix P

Gap Analysis / BMI

																														BMI
																										261					40
																														39
												207		208																38
													198																	37
																														36
																														35
	200						191												172											34
																									170					33
																											176			32
																												183		31
																														30
																				149										29
																			170											28
						130																								27
		135																												26
																	142													25
															120															24
																														23
																														22
																														21
																														20
																														19
																														18
No BMI			143	193	172			280	282	223	191					188					297	183	149		160				179	130	No BMI

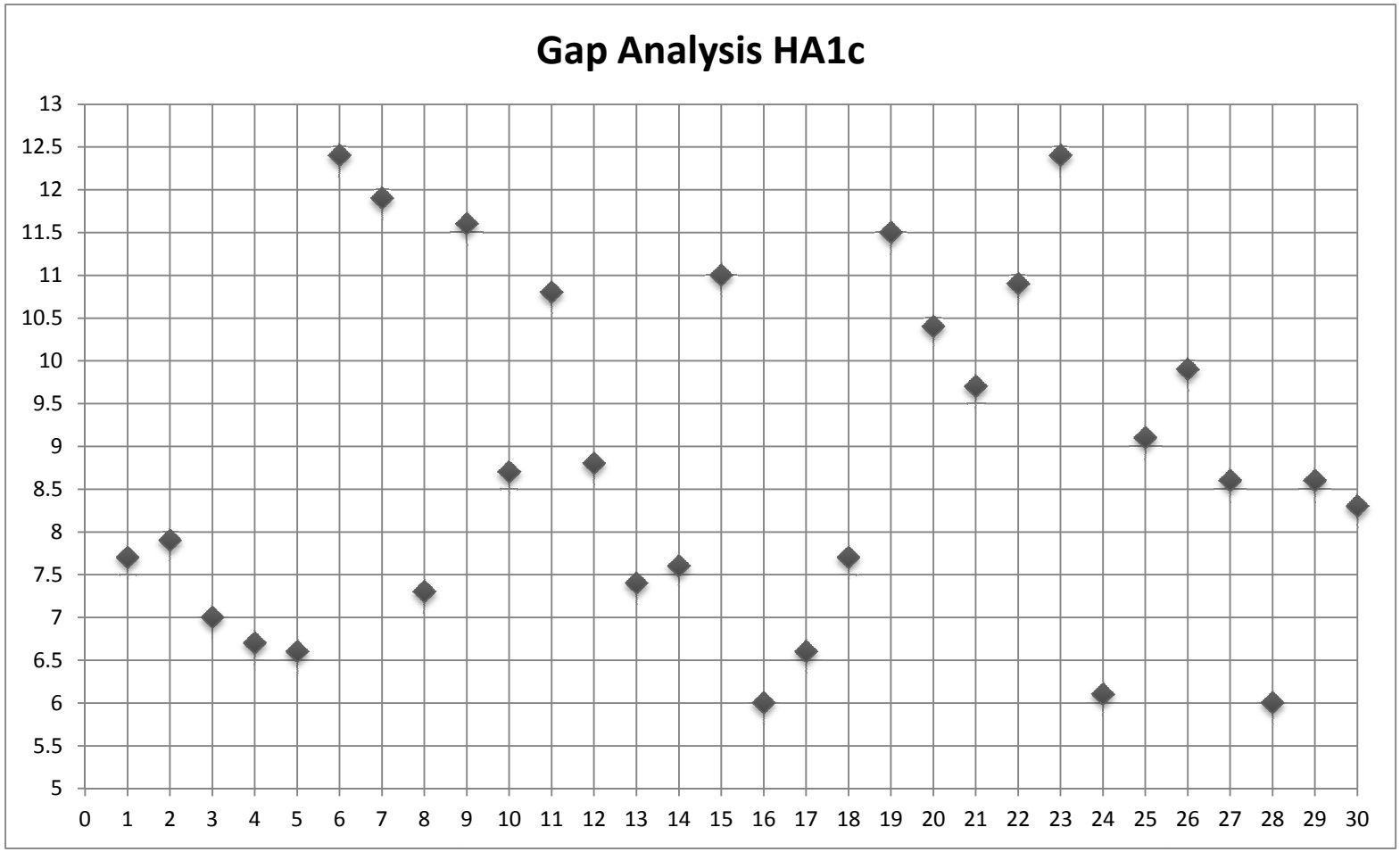
Appendix Q

Gap analysis of blood pressures



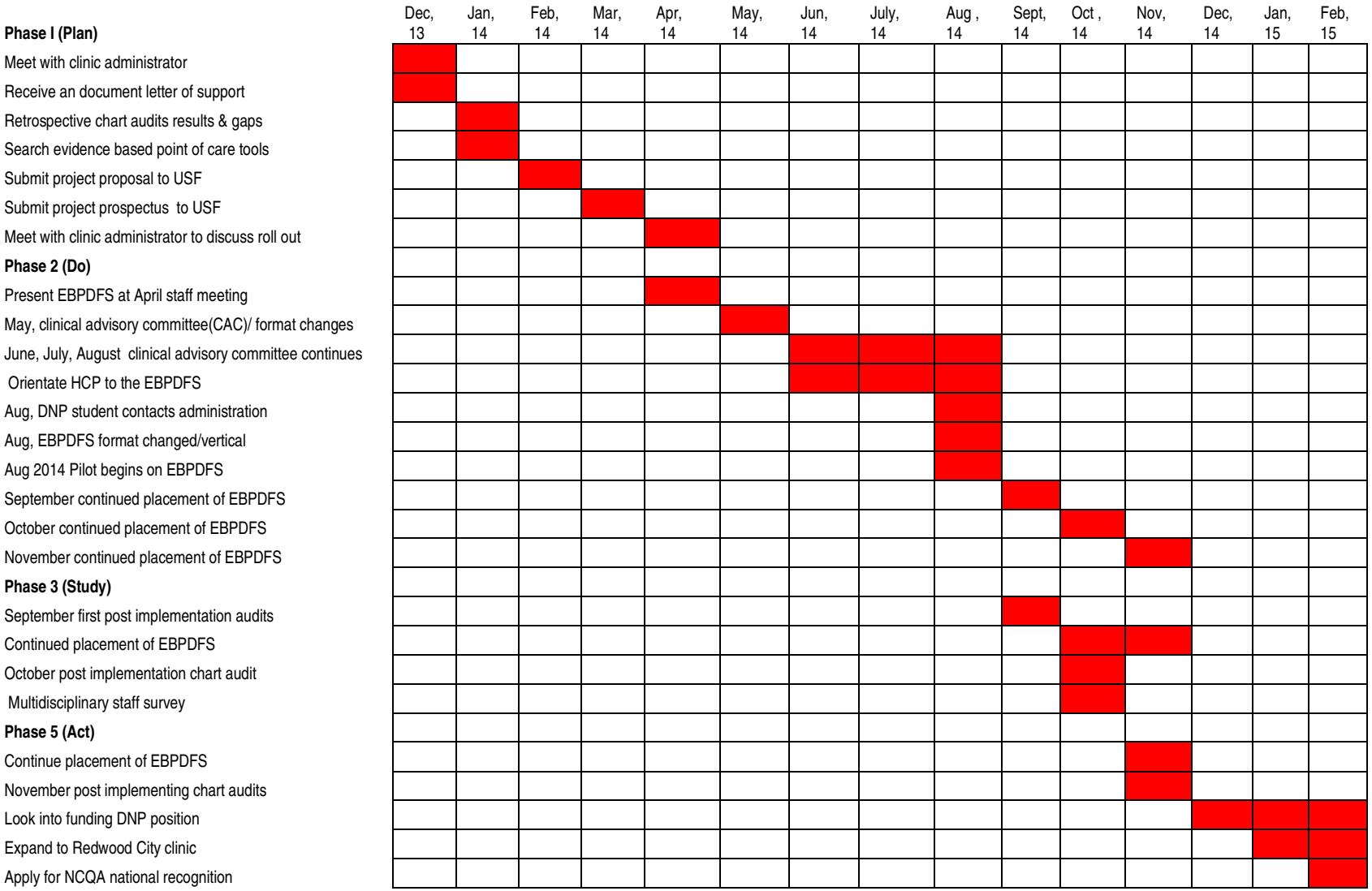
Appendix R

Gap analysis of HA1C



Appendix S

GANTT



Appendix T

SWOT Analysis

Strengths

- No additional cost.

-Both clinics have long history and positive reputation in the community.

-Many passionate and motivated HCP's and volunteers.

-HCP's with specialties specific to diabetes management: endocrine, podiatry, ophthalmology, etc…

-Committed volunteer NP soon to transition to DNPc.

-Increase level of trust.

-Supportive culture.

-Fosters multidisciplinary team participation.

-No aspects of project outsourced.

-Ability to speak with primary/secondary stakeholders.

-Multidisciplinary treatment team.

-The EBPDFS will save time in the long run for HCP's seeing patients and streamline care.

Weaknesses

-Presently time consuming paper charts, no electronic medical records (EMR).

- Clients have no insurance, hospitalization or emergency visit costly.

- Lack of computers no EMR.

-Possible cultural barriers with clients.

-Nursing assistance staff don't know how to calculate and document BMI.

-All staff increase constraints of documenting on EBPFS in addition to chart history and physicals.

-Pilot limited Sept, Oct, and Nov. This limits ability to evaluate impact of pilot on HA1c.

-Initial start will take a little more time on EBPDFS.

-Need to take time to in-service/orient staff with the EBPDFS.

Opportunities

- If project is successful, HCPs will spend less time going through charts prior to seeing client.

-Patients increased satisfaction with less fragmentation of care and timely referrals.

-Opportunity to increase collaboration and communication with all disciplines and HCP's.

- Administration support and encouragement for this new EBPDFS to become embedded in all type II diabetic charts in San Mateo and Redwood City.

-Unique opportunity to focus on the triple aim.

- Integrate subjective and objective data into everyday practice.

-Improve quality of care for type II diabetic patients.

-Potential to save San Mateo county cost of uninsured T2DP emergency room and or hospitalizations.

-Opportunity to apply for national recognition through NCQA.

-Increase communication among disciplines.

Threats

-Lengthy time to orientate staff to the new EBPDFS.

- Some staff might not be accepting of the change.

- Only one project manager (NP/DNP student).

-No alternate staff to cover or replace NP/DNP student.

-Some multidisciplinary team members might disagree with format of the NCQA guidelines and reject change in practice.

-Lack of instruction on how to correctly document on the EBPDFS.

Appendix U

Chart Audit Results

	Sep-14	Oct-14	Nov -14
Subjects (N)	9	20	10
EBPDFS is present	100%	100%	100%
EBPDFS is being used	0%	45%	50%
EBPDFS has proper documentation	N/A	45%	50%

Appendix V

Staff Satisfaction Survey

This is the link if you want to do survey electronically
https://www.surveymonkey.com/s/TW6VVCL

1. Circle the discipline that fits your professional role best (select only one)

MD RN NP NA/MA Clerk/Unit secretary Translator

Dentistry Dietary/nutrition ophthalmology administration

2. Have you seen the diabetic flow sheets (in any of your charts)? Yes No

3. Have you completed or filled out the diabetic flow sheet? Yes No

4. Do you find the diabetic flow sheet useful?

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree

5. Does the flow sheet save time ?

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree

6. Are you satisfied with the diabetic flow sheet?

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree

7. Please lest the reasons why you are satisfied with the diabetic flow sheet?

8. Please list any suggestions you have for improving the diabetic flow sheet

Appendix W

Survey Results

Post EBPFS

Have you seen the diabetic flow sheet?		
Answer Options	Response Percent	Response Count
Yes	88.9%	8
No	11.1%	1
answered question		9
skipped question		0

Post EBPFS

Have you completed (or filled out) a diabetic flow sheet?		
Answer Options	Response Percent	Response Count
Yes	55.6%	5
No	44.4%	4
answered question		9
skipped question		0

Do you find the diabetic flow sheet useful?		
Answer Options	**Response Percent**	**Response Count**
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree or disagree	11.1%	1
Agree	55.6%	5
Strongly Agree	33.3%	3
	answered question	**9**
	skipped question	**0**

Post EBPFS

Does the flow sheet save time?		
Answer Options	**Response Percent**	**Response Count**
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree or disagree	11.1%	1
Agree	44.4%	4
Strongly Agree	44.4%	4
	answered question	**9**
	skipped question	**0**

Post EBPFS

Are you satisfied with the diabetic flow sheet?		
Answer Options	**Response Percent**	**Response Count**
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree or disagree	11.1%	1
Agree	66.7%	6
Strongly Agree	22.2%	2
	answered question	**9**
	skipped question	**0**

Narrative Results

Multidisciplinary team member	Name one thing you specifically liked about the flow sheet?	Name one way this flow sheet could be improved upon?
Registered Nurse #1	Ease of tracking information	No Comment
Registered Nurse #2	I specifically liked that I was able to quickly glance at the table and see the latest results.	Maybe Highlight LDL
Nurse Practitioner #1	All on one page. I don't have to go through pages of a chart. Plus I can open chart up and see my patient's progress.	For weight more specifically BMI. I like to show pts how they are doing so I think if the BMI box was highlighted in red (BMI over 30= obese) and highlight in yellow (BMI 25-30 = overweight) would be a nice addition
Nurse Practitioner #2	Tracking of lab test is easy, and makes work flow more efficient.	Add dentition/dental to the annual checks on the flow sheet.
Dietary/Nutrition	I find it useful	No Comment
Physician #1	Put no comments	Put no comments
Physician #2	I like the lipid control evaluation	Please add renal function test (BUN/Creatine)
Nursing Assistant #1	That I can see the patients trends in lab work	No Comment
Nursing Assistant #2	Having all the information in one place.	A bit too long. Could you just have one line for each category, blood pressure HA1c, LDL etc? That might tighten it up and be easier to read.

Appendix X

Grant/Funding

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Program Summary Statement: Describe your overall purpose or ultimate goal of your program/project (broad statement that expresses clearly what you hope to accomplish as a result of the activities you will implement).

The overall purpose of the Beyond DCD project is to **increase access to medical care** for our patients by implementing the Diabetes Care Days (DCD), a monthly multi-station group visit program for comprehensive diabetes care, as well as supporting a nurse practitioner to see patients who require medical care in between the monthly Diabetes Care Days and for other conditions.

Objectives: Explain the outcomes you want achieve to reach your goal. Write them as SMART objectives – Specific, Measurable, Achievable, Realistic, Timely.

Example: 1) By April 30, 2014, there was be a 50% increase in the number of clients, from a baseline of 100 to 150, accessing primary care as a result of our outreach and enrollment program

1) By August 31, 2015, at least 150 patients will have participated in a Diabetes Care Day event.

2) By August 31, 2015, at least 75% of participants in Diabetes Care Days will report increased engagement in self-care management through increased knowledge and/or planned lifestyle changes.

3) By August 31, 2015, the nurse practitioner will provide an additional 380 patient encounters for diabetes or other related medical care.

Program Narrative: Describe your proposed program/project. Outline your work plan and intended outcomes as well as how you will document and measure the impact of your proposed activities and/or deliverables. Explain your plans for sustaining this program.

Diabetes is a chronic disease that requires life-long monitoring, treatment, and lifestyle changes to prevent serious complications. Because of the chronic nature of the disease, effective management of diabetes requires active patient engagement in the care process. The Diabetes Care Day (DCD) program is designed to empower patients with self-management tools while increasing access to medical care through the implementation of monthly multi-station group visits focused on various areas of diabetes care. The stations include nutrition and cooking; essential diabetes knowledge; exercise; foot exams; medication management; and glycemic and blood pressure evaluation. This program will be modeled after the DRIVE program at Austin Health Center of Cook County, described by Vachon, et al. (J Natl Med Assoc. 2007;99:1327-1336).

Based on our experience last year, we will continue to use the multi-station model, as exit surveys indicated that the patients enjoyed the group interactions. The nutrition and exercise components were most educational for patients and will be continued as well as the medical visit, immunizations, and detailed foot exam stations. The essential diabetes knowledge group is popular, too, and we plan to continue that as well.

To further increase access to care, a nurse practitioner will help provide continuity to patients throughout the month. We found last year that many patients who were seen at the DCD visit had more medical

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problems than could be addressed at the group visit. Furthermore, there were often other issues that came up after the visit requiring another office visit. The full-time nurse practitioner will help alleviate the demand on our volunteer providers to see these patients and provide continuity to patients over time.

The work plan will extend the implementation of last year's DCD project. The DCD framework will remain essentially the same, but we found that a more directed experience worked better for our patients. We contracted with a nurse practitioner to help with the medical examinations, and she has agreed to continue in this capacity this year. The registered nurse who performs the detailed foot examinations and administers immunizations has also agreed to continue. Our nutritionist and intern will continue as well; the nutritionist is being funded from another source. A certified diabetes educator has taken on the role of the teaching the essential diabetes care group, and she will continue next year as well. All of these providers have been participating in DCD throughout the year and will not need additional training. Because the patients very much enjoyed the exercise program, we will recruit an instructor to reinstitute component that on a regular basis.

Our full-time nurse practitioner will open her schedule to follow up appointments from the DCD events and for other issues from the patients. She has worked with our contracted nurse practitioner, and her care will ensure continuity from the DCD events.

The outcomes of participation will be measured by registrations and exit surveys. The outcome for additional medical visits will be generated by our practice management software and diabetes registry database.

Provide a work plan, goals/objectives and timeline for the grant cycle (Sept. 1, 2014 to Aug. 31, 2015[4])

Generate list of eligible patients from diabetes registry by September 15, 2014 and ongoing
Recruit new exercise instructor by November 15, 2014.
Diabetes Care Days held monthly from September, 2014 to August, 2015.
Nurse Practitioner schedule open for patients September 15, 2014 to August 31, 2015.
Evaluation of Beyond DCD program and results by August 31, 2015.

[4] Each year with your grant report and before the next installment check is sent, you will be asked to submit a work plan, goals & objectives and a timeline for the next funding cycle.