CARE COORDINATORS' USE OF AN EHR TOOL TO ENHANCE THEIR ABILITY TO ENGAGE PATIENTS IN DEVELOPING A SELF-MANAGEMENT GOAL UTILIZING THE REVISED SMG-CONTRACT

A DOCTOR OF NURSING PRACTICE PROJECT SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAIʻI AT MĀNOA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF NURSING PRACTICE

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Abstract

The purpose of this evidence-based practice project was to train the Kalihi-Palama Health Center's (KPHC) care coordinators (CCs) to use an electronic health record (EHR) tool that would enhance their ability to engage patients with type 2 diabetes mellitus (T2DM) in developing a self-management goal utilizing a revised self-management goal (SMG)-contract. The patients with diabetes who had a Hgb A1c greater than 8% participated in this project. The CCs met with the patient with T2DM and developed a patient-driven plan utilizing the revised self-management goal (SMG) contract. The CCs highlighted the hemoglobin (Hgb) A1c graph in red as a stop, yellow as a slowdown, and green as a go, then engaged patients by assessing the patients' understanding of their diabetes. The patients were encouraged to choose attainable and measurable activities for their contract. Patients completed and signed the SMG contract to commit to meeting the target goal. The CCs reminded patients that small changes could create an impact on their health. The highlighted Hgb A1c graph and signed SMG contract were given to patients to place where they would be visible at their house as a reminder for them to keep their agreement. The outcome of patients' Hgb A1c showing improvement compared to the baseline was met after meeting with their care coordinators. Care coordinators enhanced ability to engage patients in self-management goals and boosts their confidence in dealing patients with chronic conditions.

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List of Abbreviations

ADA	American Diabetes Association
CC	Care Coordinator
CHC	Community Health Center
EHR	Electronic Health Record
HAPI	Hawaiian, Asian and Pacific Islander
Hgb A1c	Hemoglobin A1c
KPHC	Kalihi-Palama Health Center
LPN	Licensed Practical Nurse
RN	Registered Nurse
SMG	Self-Management Goal
T2DM	Type 2 Diabetes Mellitus

INTRODUCTION

The management of Type 2 Diabetes Mellitus (T2DM) continues to be a challenge for primary care providers. Within the unique setting of KPHC, these challenges include patients' limited understanding of diabetes, lack of proficiency in the English language, ingrained cultural beliefs, lack of insurance, and financial challenges. Studies have indicated that healthy partnerships between the health care staff and patients with T2DM can improve patient health behaviors and outcomes. Consistent health promotion resources positively influence the amount of diabetes education provided, patients' healthcare decision making, and improved adherence to treatment (Graffigna, Barello, Libreri, & Bosio, 2014; Halkoaho, Kangasniemi, Niinimaka, & Pietila, 2014; Page et al., 2015; Wang, Braginsky, & Leake, 2014). Additionally, a patient-centered culture is an essential aspect of engaging patients in their healthcare, rather than merely increasing the number of activities (Shortell et al., 2016).

The purpose of this evidence-based project was to provide a tool for KPHC's care coordinators to enhance their ability to develop self-management goals for patients with type 2 diabetes mellitus (T2DM). Generally, patients with Hemoglobin (Hgb) A1c greater than 8% are at risk for serious health complications, including chronic kidney disease, cardiovascular disease, neuropathy, and blindness. Thus, diabetes education and patient self-management are significant aspects of managing this chronic condition (Chong, 2016; Graffigna et al., 2014; Lopez et al., 2016; Wang, Gandall-Yamamoto, Domingo, & McPhee, 2017).

Needs Assessment

In the State of Hawaii, Hawaiian, Asian, and Pacific Islanders (HAPI) have the highest rates of uncontrolled diabetes (Wang et al., 2014). The management of the increased numbers of patients with T2DM population has been overwhelming to most Hawaii community health

centers mainly due to the HAPI beliefs and socioeconomic conditions, i.e., communication difficulties including English as a second language, lack of knowledge about their health condition, longstanding cultural and religious beliefs, lack of insurance, and high financial demands (Wang et al. 2014).

In the State of Hawai'i, the increased numbers of HAPI with diabetes had prompted the state's community health centers (CHCs) to develop patient-responsive strategies on educating patients about their diabetes self-management (Sinclair, Shea, Townsend, & Kaholokula, 2012). KPHC was one of the health centers in Honolulu whose goal was to increase their patients' diabetes' self-reliance and self-management (Wang et al., 2014).

As the number of new patients diagnosed with T2DM and newly diagnosed diabetes increased, the KPHC faced the challenges of meeting the patients' needs. The challenges included lack of staff to manage and educate the patients about their diabetes, patients being uninsured and not having any means to pay for their medications, and most patients being non-English speakers (Wang, Braginsky, & Leake, 2014).

Literature Review, Background, and Significance

Background and Significance

T2DM is a global public health concern that continues to rise (Zimmet, 2017). In the United States, it is estimated that between 2015 and 2030, there will be a 54% increase in T2DM diagnoses, resulting in more than 54.9 million patients with diabetes nationwide (Rowley, Bezold, Arikan, Byrne, & Krohe (2017). Diabetes-related deaths would increase by 38% during this same period unless more diabetes management strategies are developed and implemented. The most effective diabetes management strategies engaged the patient and prompted a

collaborative patient self-management approach with the health provider's input (Rowley, Bezold, Arikan, Byrne, & Krohe, 2017).

Diabetes self-management and support are cost-effective in reducing hospital admissions and readmissions (Healy, Harris, Lorenz & Dungan, 2013) and offer opportunities to significantly lower the risk for complications (Brown et al., 2012). Given the rapidly increasing rates of T2DM, the U.S. health care system will likely be unable to afford the costs of care unless incidence rates and diabetes-related complications are reduced.

Literature Search Strategy

The electronic search was conducted using PubMed/Medline, CINAHL, and the Cochrane Library. The following key terms were used: "T2DM," "Hgb A1c," "self-management," "care coordinator," and "patient engagement." The search was filtered by full text, availability in English language, limited to between 2010 and 2019, individuals aged eighteen years and older, and "Hawaiian, Asian and Pacific Islanders". The exclusion criteria were diabetes mellitus type 1, pediatric, adolescent, and pregnant patients.

Number of Articles Critiqued

A total of 312 articles met the search criteria, and all 312 were reviewed. Seventeen pertinent articles were obtained when the inclusion criteria were applied. The 17 articles were synthesized to inform this project's development and the PICO question.

Grading Tool and Grading Levels of Evidence

The articles were graded using Mosby's Evidence-Based Practice Toolkit (Ackley, Swan, Ladwig, & Tucker, 2008) after examining their methodological quality of design, validity, and applicability to patient care. Mosby's Level of Evidence is depicted in Appendix A. After a thorough review, two articles were classified as level 1, two articles as level 2; one article as

level 3; one article as level 4; five articles as level 5; six articles as level 6; No articles were classified as level 7. The synthesis and critique of the articles in a literature matrix format are shown in Appendix B.

Literature Synthesis

The literature indicated that collaboration between nurses and patients increase patients' engagement and ability to take complete control of their self-management goals. This partnership could also increase participation in patients' self-care (Halkoaho, Kangasniemi, Niinikami, & Pietila, 2014; Shortell et al., 2017; Udlis, 2011). Self-management began from having the knowledge, resources, adherence to a plan, active participation, and informed decision-making (Udlis, 2011).

Care Coordinator Led Patient Communication/Interviewing

In the capacity of a CC, registered nurses (RNs) and/or licensed practical nurses (LPNs) play an essential role in collaborating with providers and patients. CC implemented motivational interviewing techniques tailored to the patient's cultural background showed a significant improvement in patient medication adherence and healthier lifestyles. The tailored approach created a sense of cultural awareness and sensitivity, which helped increase the care coordinator's credibility (Chong, 2016; Sinclair, Shea, Townsend, & Kaholokula, 2012).

The benefits of having bilingual CCs communicating with patients in their language create a trustworthy relationship, primarily when the CCs can utilize culturally appropriate linguistic materials to emphasize significant points (Rawlins, Tascano-Garand, & Graham, 2017; Solorio et al., 2015). Patients managed by bilingual CCs experienced a substantial decrease in average Hgb A1c (Rawlins et al., 2017). A culturally tailored approach among Native Hawaiians

and Pacific Islanders for self-management intervention of short duration was a practical approach to improving diabetes management (Sinclair, Shea, Townsend, & Kaholkula, 2012).

There was evidence that community-based care coordination contributed to success in implementing the management of diabetes and other chronic conditions among the poor and underserved populations (Page et al., 2015; Wolber & Ward, 2010). In their role, CCs must wear many professional hats that represent many sectors of the community. The CCs managed the patients' holistic needs, including referrals to specialists, social services, insurance consultants, ordering medical supplies, and transportation arrangements (Vetter-Smith et al., 2012).

Increasing Patient Participation

Several studies showed that increasing patient engagement was an essential part of improving patient adherence to health care. The high level of patients' participation in their care revealed better outcomes (Chong, 2016; Ratanawongsa et al., 2012; Shortell et al., 2017). When patients were engaged in their care, they asked questions and showed a willingness to learn about their health conditions (Chong, 2016). In some studies, patients' engagement in their care improved knowledge, and they continued to maintain their healthy lifestyles (Sinclair et al., 2012). Chong (2016) and Rawlins et al. (2017) indicated that, especially for Non-English speakers, patient engagement was crucial in building trust between medical staff and patients. Further, having family members as part of the team created a more substantial impact on patients' conditions as they were influential in their health.

Utilizing a visual representation of Hgb A1c trends via EHR proved to be an excellent tool to engage and educate patients about diabetes (Wang et al., 2017). According to Wang et al. (2017), utilizing an EHR tool as a visual aid shows patients with diabetes actively participating in their healthcare.

Enhanced Patient Understanding Diabetes Management

The antecedents of self-management included knowing the information, self-efficacy, support, intention, and mutual investment among patients and medical staff in attaining self-management goals (Udlis, 2011). Several studies emphasized the importance of understanding diabetes management. The studies showed increasing patients' understanding of their health condition would encourage them to pursue their self-management goal (Sinclair et al., 2012; Udlis, 2011; Vetter-Smith et al., 2012). Udlis (2011) recommends providing information to help increase patient's knowledge and adherence to a health care plan as part of their diabetes management. Udlis (2011) added that further investigation is needed to assess the results of improved quality of life, improved clinical outcomes, and reduced healthcare costs by exploring self-management from the patient's standpoint. Patients who are engaged in self-management have an increased understanding of their health condition (Lopez et al., 2016). Diabetes management was valuable for advancing clinical outcomes and improving patients' health (Funnell et al., 2010).

Quality and Consistency

The literature described the positive impact of patients' engagement in their care and improvement in their quality of health. Several authors, e.g., Chong (2016), Graffigna et al. (2014), Lopez et al. (2016), Wang, Gandall-Yamamoto, Domingo, & McPhee (2017), affirmed the need for incorporating patient self-management into successful diabetes management education.

Summary

Patient engagement strategies, such as using a nurse CC, patient interviewing, increasing patient participation, enhancing patient understanding of diabetes management, and maintaining

quality/consistency, were suggested by the literature to increase patient engagement. An additional strategy for increasing patient engagement in a population of patients with T2DM at a local CHC in Honolulu, HI, was using an EHR tool. This project sought to demonstrate whether the use of an EHR tool by CCs at a CHC would enhance patients with T2DM's abilities to develop their own self-management goals.

Limitations

The literature identified various strategies for the implementation of patient self-management, but there were no trends toward standardization of the approaches. It was recommended to use tailored approaches to create a sense of cultural awareness and sensitivity, but the components of culturally based approaches varied. Therefore, further study was suggested to improve the quality of self-management in patients with chronic conditions. Some of the reviewed articles contained general information and were not only focusing on HAPI, who were the target of this project.

Problem and Purpose Statement

The problem addressed by this DNP Project was limited knowledge existed about using an EHR tool to assist the diabetes self-management education for patients with T2DM. The purpose of this evidence-based quality improvement project was to educate KPHC's CCs to use a tool in the EHR to promote the development of T2DM patients' self-management goals based on their preferences as indicated by their results on the revised and translated SMG contract. The goal was to enhance the CCs' ability to engage patients in developing a self-management goal using the revised SMG contract translated to different languages (Chinese, Chuukese, Filipino, Korean, and Marshallese). A secondary goal was to improve Hgb A1c measures in T2DM patients.

PICO Statement

The PICO statement for this project was: would CCs at KPHC who received training on how to navigate the Hgb A1c trends in the EHR to promote the development of patient's self-management goal as compared to those who used care coordination training practices lead to improvement in the Hgb A1c in patients with uncontrolled T2DM?

Conceptual Framework

The Iowa Model-Revised provided an outline for the project design (Iowa Model Collaborative, 2017). The project's major tasks included engaging participants, utilizing resources, implementing the project, obtaining data, and creating an evaluation plan. A depiction of the Iowa model is shown in Appendix C. Permission to use the Iowa Model was provided in Appendix D.

Project Goals and Objectives

This project aimed to improve the self-management of patients with T2DM using an EHR Tool. The timeline and objectives of the project were:

1. By May 2020,
    a. 50% of care coordinators would be trained in navigating the EHR in to view or print the Hgb A1c trends analysis and utilizing the revised and translated self-management goal contract based on patient's preferences during the care coordination care planning.
    b. A comparison of the care coordinators' confidence level in developing a self-management goal contract would be done using a pre-test and post-test.

c. Care coordinators would initiate a self-management goal based on the patient's preferences

2. By October 2020, T2DM patients who met with the care coordinator and signed a self-management contract would have a Hgb A1c test done to determine if there was an improvement in their Hgb A1c compared to the previous result.

The GANTT chart is located in Appendix E.

Project Design

This project was initiated at the KPHC Diabetes Clinic. The Clinic is open one day a week, on Wednesdays from 8:00 am to 11:30 am, and is managed by one provider, a dietician, and a medical assistant. This project required the provider to meet with the patient and determine if they would benefit from a diabetes self-management intervention. Patients determined to benefit from the diabetes self-management intervention were then referred to a care coordinator to implement the self-management goal. The process of developing the patient's diabetes self-management goal consisted of a meeting between the CC and the patient during which the CC engaged the patient in learning about and interpreting their own Hgb A1c trends via the EHR. The trend was the talking point or the trigger for developing the self-management goals with the patient. The CC allowed the patient to decide upon which diabetes self-management goals they intended to achieve. The patients also determined their level of confidence in achieving the goal and discussed barriers to achieve their goal with the CC. Patients signed the SMG contract to indicate their agreement and commitment to their plan. Patients were given a copy of the signed SMG contract in their language.

The patient's meeting was conducted via the organization's guidelines, and an algorithm was designed for the implementation of this project. The algorithm process is found in Appendix

F. A patient "warm hand-off" was used when the patient transitioned from the provider to the CC as this had been shown to foster successful interactions between the CC and patient and increase the patient's adherence with their care (Vetter-Smith et al., 2012). Building trust and social interaction between the CC and patient is essential in improving the patient's healthcare (Rawlins et al., 2017).

Pre-implementation Staff Training Procedures

Pre-training. The DNP student created a PowerPoint presentation detailing the project process and goals and scheduled the CCs and their supervisor's training session. Copies of the algorithm, the Hgb A1c graph, and the revised SMG form were provided at the meeting. The algorithm is shown in Appendix F.

Training. At the onset of the training session, the DNP student expressed appreciation to the CCs and supervisor for attending. A pre-test was then distributed to each CC before the presentation. Copies of the sample Hgb A1c graph (Appendix G) and revised SMG form (Appendix H) were distributed to the group. The DNP student then explained the process, purpose, importance, and benefits of implementing the DNP project.

The CCs were shown how to access the patient's Hgb A1c graph in the EHR. The group was directed to view the sample of the Hgb A1c graph. The DNP student explained how to use the graph to start the conversation about diabetes and the complications between CC and patient. The CCs were then taught to use the three colored markers (red, yellow, and green), comparable to the colors of a traffic light. The red represents stop, yellow for slow down, and green for good. The CCs were instructed to highlight the highest Hgb A1c value of the patient in red, highlight the Hgb A1c value at 7 or below with green (to indicate the American Diabetes Association's ideal goal), and highlight the patient's Hgb A1c goal in yellow. The rationale for using the three

colors to rate the patients' Hgb A1c levels was to accommodate those Diabetes Clinic patients whose English is their second language.

After highlighting the results, the CCs were instructed to ask the patient what they thought they could do to improve their Hgb A1c level. CCs were instructed to allow the patient adequate time to thoroughly think about what they could do. If the patient did not suggest any ideas, the CC was instructed to begin using a series of prompts to assist the patient. For example, a prompt could be "What would be a possible way to control or manage your diabetes?" Upon asking the prompt, the CCs were instructed to wait for the patient's answer. Additional supportive prompts were: "Do you have any idea?"

To assist the patient, especially when the patient did not reply to the CC's interviewing, the CCs were instructed to provide additional support by showing the SMG goal contract form that contains ways to perform self-management such as taking medications as prescribed, increasing physical activity, eating a healthy diet, limiting the consumption of sodas, rice, and bread, checking blood sugar twice a day, and monitoring or checking blood sugar daily.

The CCs were instructed to use an approach to give the patient complete control of their healthcare by emphasizing the patients' actions should be what they want to achieve for themselves instead of what the medical staff wants. Upon completing the patients' goals for what they want to accomplish, the CCs were instructed to help the patient identify barriers and solutions toward reaching their own goals.

The final step covered in the CC training was to obtain the patient's signature on their SMG contract. The CC would give the patient their own highlighted Hgb A1c graph and their signed SMG contract. Lastly, the CCs were told to instruct the patient to place the copies of the Hgb A1c graph and SMG contract where he or she can visibly see it to remind her or him about

the self-management goal. Upon completing these activities, the CC was instructed to schedule the patient for their laboratory blood test and follow-up visit.

Post-training. Upon completion of the training, the DNP student distributed the post-test. The CCs were instructed to complete their post-test before leaving the room. The DNP student collected all completed pre-and post-tests. This pre-and post-test can be found in Appendix I.

Pre-Implementation Preparation

The DNP student created the patient log to monitor the number of patients with Hgb A1c greater than 8% who came to the Diabetes Clinic. To ensure patient privacy, the patients' names were replaced with an identification number, and the content of the log included the patient's ethnicity, age, baseline Hgb A1c (collected between April 2020 to July 2020), and the post A1c result (collected between August 2020 and October 2020). Plans were to place this log at the Diabetes clinic, which allowed the CC to access and log the patient's post-intervention Hgb A1c in the last phase of the data collection.

Sampling Plan

Setting. The evidenced-based practice DNP project took place at KPHC, a Federally Qualified Health Center (FQHC), which is an independent, 501 (c) (3) non-profit organization that provides health care and social services to the Kalihi Palama community, many of whom are struggling financially and who are facing obstacles in accessing health care (http://www.kphc.org/). KPHC is situated in the heart of Kalihi-Palama, an urban, inner-city community with an estimated 63,820 residents, most of whom are underprivileged and underserved Asian, Native Hawaiian, and Pacific Islander ethnic minorities. KPHC serves over 20,000 patients yearly and had medical visits of over 51,000 annually. Over 2,000 KPHC patients are diagnosed with T2DM.

Participants. The planned participants were the seven KPHC adult CCs who manage patients with T2DM receiving care services at the DM clinic from April 2020 to July 2020. Since a small number of CCs participated in this project, the convenience sampling method was utilized.

Human Subject Consideration.

The author completed the Collaborative Institutional Training Initiative (CITI) training for research ethics and compliance and the Health Insurance Portability and Accountability Act (HIPAA) training on patient privacy protections. The Doctor of Nursing Practice (DNP) project involved making judgments about a program to improve or further develop program effectiveness and inform decisions about future programs within an organization (University of Hawaii Human Studies program, personal communication, August 2, 2018). All these tasks are related to quality improvement and would not produce generalizable knowledge. Thus, this project did not require an Institutional Review Board (IRB) application and review.

Measures

Care Coordinator's Pre-and Post-Test. The DNP student created this measure to determine CCs' knowledge and confidence about the process of utilizing visual Hgb A1c trends analysis on the EHR and about developing a teaching plan based on the patient's preference to improve their Hgb A1c. As shown in Appendix I, the pre-and post-test questions were a) I am aware and knowledgeable about the Hgb A1c trends in the EHR; b) I feel confident teaching patients using a visual graph about Hgb A1c trends in the EHR; c) I allow the patient to choose his/her preferences when developing a self-management goal contract. The CCs rated their confidence on a 5-point Likert-type scale ranging from "1" (less confident) to "5" (very confident).

Patient's Pre-and Post-Test. The DNP student created this measure to determine patient's confidence in carrying out their self-management goal and understanding the relationship between their confidence and blood sugar level. Patients responded to both questions using a 5-point Likert-type scale ranging from "1" (very low) to "5" (very high). This pre-and post-test is shown in Appendix J.

Post-implementation survey. The post-implementation survey was distributed and collected at the second and final meetings with the care coordinators. The survey measured the CCs' confidence in engaging with patients using the EHR tool, their estimation of the patient's Hgb A1c level, estimation of the patient's ethnicities, and their suggestions or recommendations to improve the project. The post-implementation survey is found in Appendix K.

Patient's Hgb A1c levels. An indirect measure of the CCs' ability to engage their patients in the self-management contract was the baseline Hgb A1c and post-intervention Hgb A1c results of the T2DM patients who participated in the sessions to determine the patients' adherence to the self-management goal contract.

Procedures

The DNP project was delayed for 2 months due to unforeseen circumstances: (a) the COVID-19 pandemic, which required adherence to CDC guidelines about mandatory social distancing, limited office visits for most patients, and (b) the arrival of Hurricane Douglas, which also caused the clinic to close temporarily. These unforeseen situations resulted in relocating the DNP project from the Diabetes Clinic to an alternate clinic location.

The relocation required the DNP student to revise the training algorithm. The revised algorithm has accommodated the modifications in the CC's daily workflow, and this algorithm is in Appendix L. The Patient's Survey was created to assess the patient's confidence and

comprehension about their health. The survey determines patients' adherence to and understanding of their health care. The Patient's Survey contained two questions: (a) How confident are you maintaining to carry out your self-management goal? and (b) What is your understanding of the relationship between confidence in carrying out your SMG and the blood sugar level? These questions used a Likert-type response ranging from 1 "less confident" to 5 "very confident." The Patient's Survey is obtained in Appendix J.

At the beginning of June 2020, the DNP student received approval from KPHC management to continue the project with a limited number of participants as most CCs were reassigned to manage the COVID-19 phone line and testing clinic. Out of seven planned participants, only one part-time CC and registered dietician (RD) implemented the project.

As finding time to meet together was a challenge, the DNP student met with each staff individually to explain the current and the proposed process, purpose, importance, and benefits in implementing the DNP project. The content of the individual meetings was similar to the planned staff training as previously described. The pre-test and post-test were distributed and completed before and after the presentation.

The two staff implemented the DNP project by using the EHR tool, utilized the revised SMG contract, and collected the patient's pre/post survey information from mid-June 2020 to the ending of August 2020. The staff also logged each patient's ethnicity and age, using a code for the name to deidentify the patient, and recorded the patient's Hgb A1c baseline. In October 2020, the staff started collecting the post Hgb A1c results of the patients. They saw a total of 26 patients who had Hgb A1c greater than 7.6 % at baseline. The patients who had Hgb A1c below 8% were referred by their primary care providers to support their diabetes management.

Evaluation Plan

The DNP student was responsible for data collection and analysis. The DNP student tracked the CCs' pre- and post-scores, reviewed data from the CC's post-implementation survey to determine any themes identified and tracked the comparison of the T2DM patient's baseline and final Hgb A1c values. The analysis strategy for each of the project's measures is shown in Table 1.

Table 1. Evaluation Plan

Measure	Analysis Strategy
CC's Pre- and Post-test	The CCs' responses described on a 5-point scale compared pre-and post-tests.
Patient's pre- and post-test	Patients' responses were compared using the mean scores of their pre-and post-test.
Post-implementation survey	The CC's responses were described using a 10-point scale, percentages, and open-ended questions.
Hgb A1c values (pre- and post-implementation)	Patients' Hgb A1c after completing the SMG were compared to their baseline results using a bar chart.

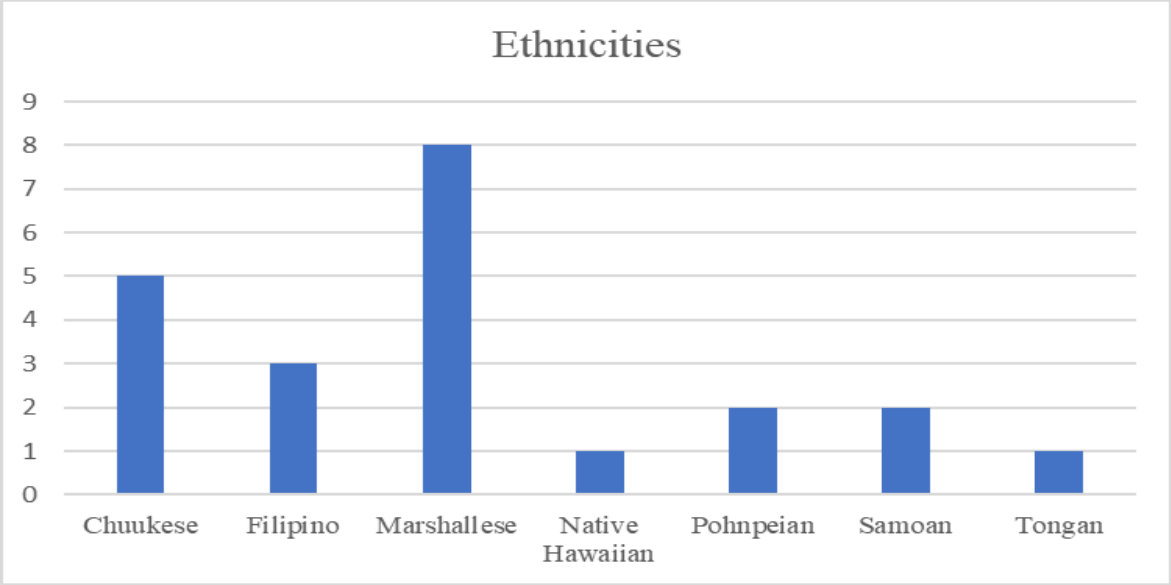
Data Analysis and Results

Data Analysis

A total of two KPHC staff (one part-time CC and one RD) implemented the project. A total of 26 patients with T2DM began the project implementation phase. During the implementation, two patients did not come back for follow-up; one patient transferred care, and one patient died. A total of 22 patients completed the intervention. Thus, the analysis was calculated on the 22 complete cases.

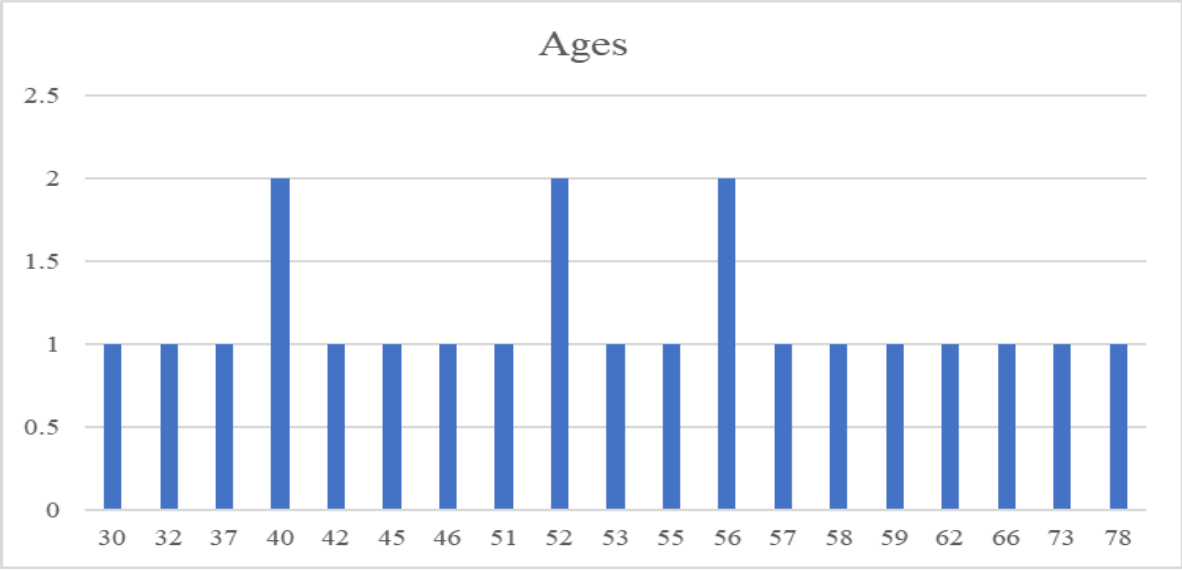
Below are the graphs that show the patients ethnicities, ages, and Hgb A1c results.

Graph 1. Patient's Ethnicities



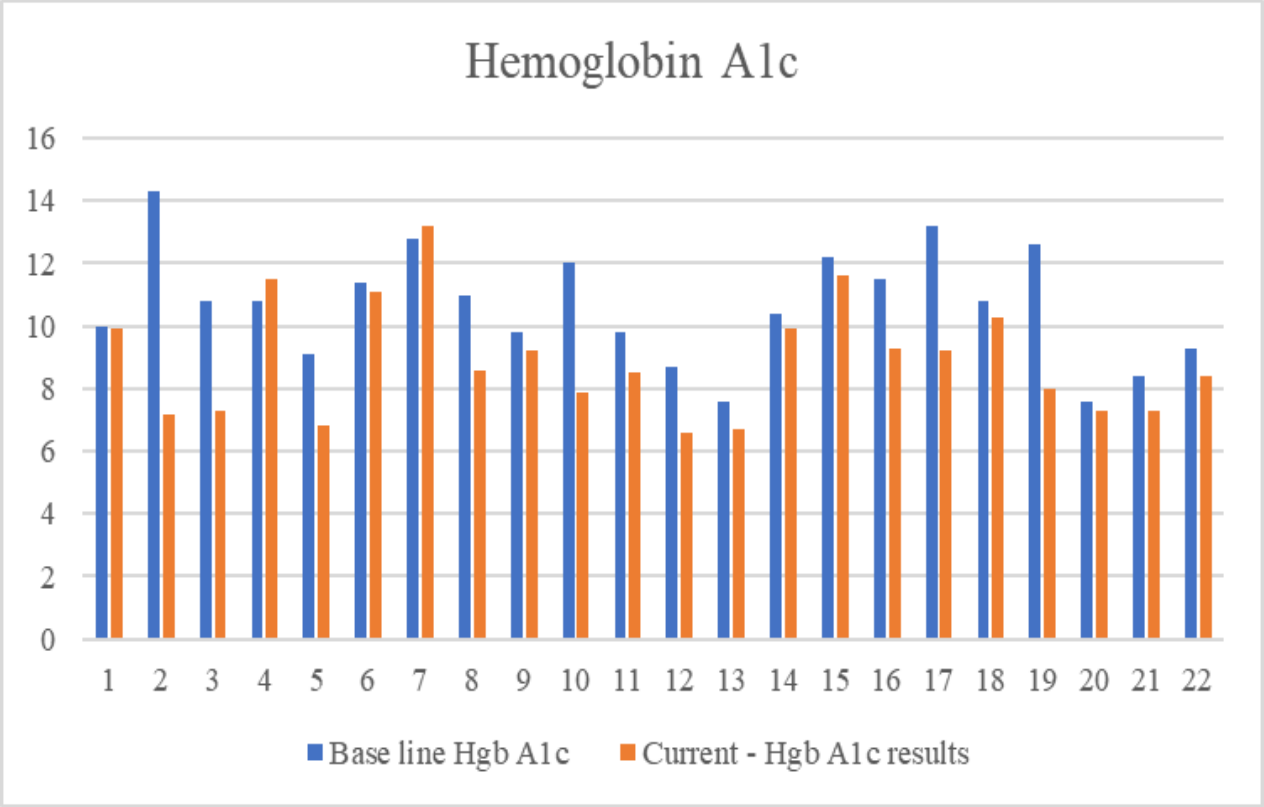
There were five Chuukese, three Filipino, eight Marshallese, one Native Hawaiian, two Pohnpeian, two Samoan, and one Tongan. These were the patients who met with staff and completed a self-management goal.

Graph 2. Patient's Ages



The ages of the patients ranged from 30 years old to 78 years old.

Graph 3. Patient's Hgb A1c Results



The results of the Hgb A1c pre-and post-results are shown in the graph. The blue color indicates the baseline Hgb A1c, and the orange color indicates the results at the end of this DNP project. The latest Hgb A1c results were after the staff met with the patients to discuss their diabetes using the tool, which was the Hgb A1c graph in the EHR, and developed and signed the self-management goal contract.

The mean pre- and post-scores on the Patient's Survey are shown below. Patients used a 5-point Likert-type scale ranging from 1 "less confident" to 5 "very confident."

Table 2 Patient's Survey

Patient's Survey*	Pre-tests mean score (N=22)	Post-tests mean score (N=22)
1. How confident are you maintaining to carry out your self-management goal?	2.38	3.23
2. What is your understanding of the relationship between confidence in carrying out your SMG and the blood sugar level?	2.38	3.58

*N=22

Results

One of the staff was unaware of the Hgb A1c graph in the EHR, and the other was aware of the tool but had not utilized it as a resource to engage with patient care. There was a little resistance to using this tool initially as they felt it was time-consuming to implement the process. However, as the staff continued to execute the process of using the tool, it became easier. Even though only a few staff implemented the DNP project, the results still showed that using the Hgb A1c graph in the EHR to prompt patients to develop a self-management goal using the revised SMG contract improved the patient's Hgb A1c.

The staff rated their confidence on a 5-point scale, ranging from 1 "less confident" to 5 "very confident." The staff's confidence about using the Hgb A1c graph to engage the patients with their self-management goals had increased. The staff verbalized confidence in navigating and accessing the Hgb A1c graph in the EHR and developing a self-management goal after several meetings with the patients. This increased rating of confidence supported the staff's response after the one-on-one training. Table 3 depicts the staff's confidence pre-and post-test results.

Table 3 Staff's Confidence on the Pre- and Post-test

Staff's Confidence: Pre- and Post-test Results		**Staff 1**	**Staff 2**
1) I am aware and knowledgeable about the Hgb A1c graphs on the EHR	Pre	2	3
	Post	4	4
2) I feel confident teaching the patient using a visual graph about the Hgb A1c trend via EHR	Pre	3	3
	Post	4	5
3) I allow the patient to choose his/her preferences when setting a self-management goal	Pre	3	3
	Post	4	5

An informal "talk story" format was used with the two staff to determine their perception of the project. The major themes and ideas were: (a) the tools are excellent; (b) building trust with the patients and providing resources for the patient's other concerns is needed.
A holistic approach to care provision was needed. Patients would interpret the staff as disinterested in assisting them if the staff focused only on educating them about diabetes.

While the initial patient education process was time-consuming, it eventually became manageable over time.

Pros of the Project:

- Great visual aid for people who are newly diagnosed with diabetes to understand Hgb A1C's fully.

- Patients can bring this home and use it as a motivational reminder to get in control of their diabetes
- This chart helps patients to think back on past mistakes or struggles and identifies areas in their lifestyle that they can improve upon
- If used with different colored highlighters, the chart would be more effective as it has been proven with ESL (English as Second Language) learners that color helps decipher meaning. Using colors will also help visual learners.

Cons of the Project:

- Requires some time that cares coordinators and providers may not feasibly have for discussing with the patient.
- Patients with memory problems may not remember in detail what they did in the past to improve their sugar levels.

Relationship of Results to Purpose/Goals/Objectives

The purpose of this evidence-based quality improvement project was to educate KPHC's CCs to use a tool in the EHR to promote the development of T2DM patients' self-management goals based on their preferences in using the revised and translated SMG contract. The revised and translated SMG contract is shown in Appendix H. The goal was to enhance the CCs' ability to engage patients in developing a self-management goal using the revised SMG contract translated to different languages (Chinese, Chuukese, Filipino, Korean, and Marshallese). A secondary goal was to improve Hgb A1c measures in T2DM patients. The objectives focused on training selected CCs to navigate the EHR in viewing or printing the Hgb A1c trends analysis and utilizing the revised and translated self-management goal contract based on patient's preferences. During the care coordination care planning, the CC's confidence level in developing

a self-management goal contract and any subsequent changes in the patient's Hgb A1c levels were examined.

The results demonstrated that the CC training was feasible, the CC's confidence increased, and the CCs were able to use the EHR tool to promote the development of T2DM patient's self-management goals. Secondarily, the T2DM patient's Hgb A1c values improved after the implementation of the patient self-management goals.

Implications

The comments obtained from the CCs indicate the implementation of this project was manageable. This project's implications include:

- Generate a larger pilot of this intervention to more patients with T2DM who attend the Diabetes Clinic.
- Refine the monitoring of the use of patient self-management goal setting on the patient's Hgb A1c trends.
- Create a short training video on how to utilize the Hgb A1c graph to engage patient with diabetes and include the training video in the Diabetes dashboard. This will assure the communication of the procedure to any new providers.
- Divide the information provided by the CC into smaller, manageable portions by offering the patient intervention into two or three smaller sessions.
- Divide the meeting with the patient across two to three visits to provide more time for the patient to understand how to set self-management goals.
- Simplify the SMG contract to enable the patient to focus on its key details.

- Pilot the revised, simplified version of the SMG contract with small groups of patients representing the major ethnicities represented by the patients with T2DM who attend the Diabetes Clinic.

Strengths and Limitations

Strengths

The positive outcomes were developing staff's confidence in engaging patients in self-management goals and building supportive relationships as evidence of patients' adherence to care and the resultant improvement in the Hgb A1c values. In addition, the CC's indicated the project was a feasible and realistic intervention they could implement. This DNP project also added to KPHC's activities related to diabetes management that are needed for their ADA recertification.

Limitations

Modification to the project's implementation were required because of the onset of the COVID-19 pandemic and Hurricane Douglas. Two staff out of seven participated in the project's implementation. The small number of participating staff limited the diversity of the staff feedback to inform the quality of the project and its implementation.

Sustainability

Recommendations for sustainability include involving more CCs to use the intervention: using the EHR tool, showing the patient their Hgb A1c, and simplifying the SMG contract. The SMG may be improved by obtaining patients' feedback and recommendation, using culturally-relevant words, visuals, or images, and ultimately translating the content into different languages. The advantages of having the SMG translated into patients' native language is to further their understanding of their health condition and the probability of carrying it through. Another

recommendation is to integrate the training process into KPHC's workflow for the Diabetes Clinic. The benefit of assimilating this process into the Diabetes Clinic is to help increase the number of patients being cared for and to increase providers' productivity. Further actions may be planned to sustain the project by meeting with each CC individually and asking for their project improvement ideas. This project contributed to the improvement of diabetes management at KPHC. It was included in KPHC's list of activities to count toward the CHC's plan for recertification by the American Diabetes Association (ADA).

Dissemination Plan

The DNP student has developed group-specific presentations for this project and scheduled presentations to the KPHC clinical operations director, Diabetes Clinic staff, providers, and the T2DM patients who participated. A scheduled a meeting will be held with the clinical operations director to discuss and promote the project.

The DNP student met with the Diabetes Clinic staff to discuss the process and to thank them for their support in implementing this project. Because of COVID-19 precautions, individual meetings with providers were implemented to promote the intervention and encourage referrals for patients with T2DM. Upon receipt of the patient list, the patients with T2DM and Hgb A1c value greater than 8% were prioritized for appointment scheduling.

A synopsis of the project's key steps and outcomes will be translated into the patient's native language. The translations will be piloted with patients that represent each of the main ethnicities who have T2DM and attend the Diabetes Clinic.

A summary of the project will be shared with the diabetes management coordinators at the other KPHC facilities to promote innovative ideas for enhancing care for patients with T2DM.

DNP Essentials

Through this project, the DNP student met the DNP Essentials outlined by the American Association of Colleges of Nursing (AACN, 2006). The following table displays the DNP Essentials and links each to the project.

AACN DNP Essentials	**Project Activities**
Essential 1: Scientific Underpinnings of for Practice, Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking, and Essential VIII: Advanced Nursing Practice	The DNP student conducted a needs assessment of the project site and recognized the impact of an increasing need for management of T2DM patients. The need for a patient empowering educational strategy was identified and an individual-centered intervention was formulated.
Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice, Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care, and Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes	Throughout the course of this Project, the DNP student reviewed available evidence in the literature to formulate an intervention which was based on a previously identified diabetes management best practice. The use of technology and interprofessional collaboration formed the basis of the intervention.
Essential V: Health Care Policy for Advocacy in Health Care and Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health	Demonstration of meeting these Essentials occurred as the DNP student promoted the physical/psychosocial health of the T2DM patients through teaching the CCs to effectively assist them to develop their own diabetes self-management goals. By engaging in diabetes self-management, the patients were able to decrease their Hgb A1c values. By improving this population's health, long term health consequences of poorly managed Hgb A1c levels can be prevented.

Conclusion

This quality improvement project utilized the EHR tool and the Hgb A1c graph to prompt the CCs to develop a self-management goal using the revised SMG contract, which has shown some positive outcomes. The goal of promoting a resource in the EHR for the care coordinators

to educate patients about diabetes and develop a self-management goal using the revised SMG contract was met.

Appendix A: Mosby's Level of Evidence

Level	Description	Level of Evidence
Level I	Evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence-based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results	2
Level II	Evidence obtained from at least one well-designed RCT (e.g., large multi-site RCT).	2
Level III	Evidence obtained from well-designed controlled trials without randomization (i.e., quasi-experimental).	1
Level IV	Evidence from well-designed case-control or cohort studies.	1
Level V	Evidence from systematic reviews of descriptive and qualitative studies (meta-synthesis)	5
Level VI	Evidence from a single descriptive or qualitative study.	6
Level VII	Evidence from the opinion of authorities and/or reports of expert committees	0
	Total	**17**

Appendix B: Literature Matrix Table

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Choi, T., Davidson, Z. E., Walker, K. Z., Lee, J. H., & Palermo, C. (2016). Diabetes education for Chinese adults with type 2 diabetes: A systematic review and meta-analysis of the effect on glycemic control. Diabetes Research and Clinical Practice. Retrieved from http://dx.doi.org/10.1016/j.diabres. 2016.04.001 Level of Evidence: 5	To systematically review evidence in English and Chinese publications to determine the size of the glycemic effect of different diabetes education approaches for Chinese patients.	5 = CINAHL Plus, Embase, Ovid Medline, Scopus, and the China National Knowledge Infrastructure database	Systematic review - meta-analysis	Systematic review	**Finding:** The literature mentioned that family involvement in the Chinese population creates a significant impact on their health care **Conclusion:** It is shown that continuing education increases understanding about health care.
Chong, M. T. (2016). Clinical outcomes of a diabetes education program for patients with diabetes mellitus in the Micronesian community in Hawaii. Journal of Research in Pharmacy Level of Evidence: 6	To determine the clinical outcomes of a diabetes education program for diabetes mellitus in the Micronesian community in Hawaii.	30 Micronesian patients	Quality Improvement	Class - group visit	**Finding:** There is an improvement in Hgb A1c, fasting blood glucose, triglyceride levels of those who attended the six-month diabetes educational program. **Conclusion:** The "Ohana" diabetes education program succeeded in helping Micronesian patients to meet their self-management goal that prevents diabetes complications.

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Halkoaho, A., Kangasniemi, M., Niinimaki, S. & Pietila, A. (2014). Type 2 diabetes patient's perceptions about counselling elicited by interview: is it time for a more health-oriented approach? Eur Diabetes Nursing; 11(1): 13-18 Level of Evidence: 6	To describe diabetes patients' perception of their coping resources and experiences of counseling by nurses.	15 patients with T2DM	Descriptive qualitative approach	Interview: 1) patients' perceptions of their coping resources with T2DM. 2) patients' perceptions of the content and form of current counseling.	**Finding:** The findings showed that patients with T2DM claimed that their knowledge and attitude toward their health are crucial to their coping mechanisms. **Conclusion:** The recent content of diabetes counseling focused on medication, nutrition, and physical activity was adequate; however, this counseling aspect was scattered. It was recommended that the patient's participation in their health was the key to success.
Kurpas, D., Gwyther, H., Szwamel, K., Shaw, R., Avanzo, B., Holland, C., & Bujnowska-Fedak, M.. M. (2018). Patient-centered access to health care: a framework analysis of the care interface for frail older adults. BMC Geriatrics. Retrieved from https://doi.org/10.1186/s12877-018-090607 Level of Evidence: 6	To gather qualitative data from stakeholders.	44 participants	Focus group	Focus groups	**Finding:** The five dimensions of accessibility to services: approachability, acceptability, availability and accommodation, affordability, and appropriateness, were described. **Conclusion:** The aging populations may increase the need for high utilization access to health and social care both at the individual and community level due to their chronic condition.

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Page, T., Amofah, A., McCann, S., Rivo, J., Varghese, A., James, T., Rivo, M. &Williams, M. (2015). Care management medical home center model: priliminary results of a patient-centered approach to improving care quality for diabetic patients. Health Promotion Practice 16(4) 609-616 doi:10.1177/1524839914565021 Level of Evidence: 5	To measure the preliminary impact of an innovative care management model, the Care Management Medical Home Center (CMMHC) improves access to and quality of care for 10,000 patients with diabetes served by a network of federally qualified health centers (FQHCs) in Miami-Dade County.	Health Choice Network of Florida (HCNFL) and Federally Qualified Health Centers (FQHCs)	Quality Improvement	Collaboration with HCN and FQHCs and coordination with care teams and patients	**Finding:** The number of patients who participated in the study increased by 12% (925) resulted from 7,664 to 8,589 **Conclusion:** There were significant improvements in care coordination method in improving care for poor and underserved populations with chronic diseases.
Ratanawongsa, N., Handley, M. A., Quan, J., Sarkar, U., Pfeifer, K., Soria, C., & Schillinger, D. (2011). Quasi-experimental trial of diabetes self-management automated and real-time telephonic support (SMARTSteps) in a Medicaid managed care plan: study protocol. BMC Health Services Research. https://doi.org/10.1186/1472-6963-12-22 Level of Evidence: 3	To investigate differences in 6-month changes in patient-centered outcomes including quality of life and functional status (SF-12 and number of days spent in bed due to illness), comparing patients exposed to ATSM with wait-list controls and comparing patients exposed to ATSM (SMARTSteps-ONLY) with ATSM augmented by medication adherence and intensification (SMARTSteps-PLUS)	The 362 adult health plan members with diabetes who speak English, Cantonese, and Spanish	Quasi-experimental trial/language-stratified randomization	Phone call interview	**Finding:** The author mentioned that the SMARTSteps evaluation trial's quasi-experimental design offers a useful illustration of the advantages and challenges of a wait-list variant of a stepped wedge design. **Conclusion:** The evidence-based or evidence-informed HIT tools fill the gap in bridging the clinical care-public health and not only for diabetes but also for other medical conditions.

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Rawlins, W. S., Toscano-Garand, M. A., & Graham, G. (2017). Diabetes management with a care coordinator improves glucose control in African Americans and Hispanics. Journal of Education and Health Promotion, 6, 22. http://doi.org/10.4103/jehp.jehp_27_15 Level of Evidence: 5	The purpose of this study was to evaluate diabetes control, as measured by Hgb A1c improvements among African American and Hispanic patients receiving conventional clinical treatment combined with a bilingual diabetes educator using culturally and linguistically appropriate educational materials.	AA - 98 Hispanic - 55 Combined - 153	pilot study	Face to face observation	**Finding:** Combining standard diabetes care with a bilingual educational care coordinator results in significant reductions in mean A1c (−1.6% Hgb A1c) in African American and Hispanic patients with poorly controlled blood glucose. **Conclusion:** They believe that this model (using a co-located patient with T2DM care coordinator/educator) would be easily transferrable to large physician practices, patient medical homes, and accountable care organizations.
Shortell, S., Poon, B., Ramsay, P., Rodriguez, H., Ivey, S., Huber, T., Rich, J., & Summerfelt, T. (2017). A multilevel analysis of patient engagement and patient-reported outcomes in primary care practices of accountable care organizations. J Gen Intern Med 32(6):640-7 DOI: 10.1007/s11606-016-3980-z Level of Evidence: 1	To study naturally occurring differences in the rate of implementation of patient engagement initiatives in two large ACOs-Advocate Health Care (AHC) in Chicago, IL, and DaVita HealthCare Partners (DHCP) in Los Angeles, CA.	4368 patients	Cross-sectional multilevel observational study - random	PRO survey	**Finding:** Active patient engagement in their care has shown improvement in depression symptoms, physical and social health. **Conclusion:** The study showed having primary care team members actively involving patients by engaging the care and choosing what is important to them.

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Siminerio, L. M., Piatt, G. & Zgibor, J. C. (2005). Implementing the chronic care model for improvements in diabetes care and education in a rural primary care practice. Chronic Care Model. Retrieve from DOI:10.1177/01457217052275325. Level of Evidence: 2	To determine the impact of implementing elements of the chronic care model (CCM): decision support, self-management, and delivery system redesign on providers' diabetes care practices and patient outcomes in a rural practice setting.	104 T2DM patients	pilot study	An extensive chart reviews. Provider and patient education provided by a CDE Repeat chart review	**Finding:** It showed an increase in providers who adopted the ADA Standards of care, and patients who participated in the study showed improvement in knowledge, self-confidence, Hgb, and cholesterol levels. **Conclusion:** There were positive results on practice and patients' outcomes after implementing systems to support the decision, self-management education, and delivery system restructure.
Sinclair, K., Makahi, E. K., Shea-Solatoria, C., Yoshimura, S. R., Townsend, C. K., & Kaholokula, J. K. (2012). Outcomes from a Diabetes Self-management Intervention for Native Hawaiians and Pacific People: Partners in Care. The Society of Behavioral Medicine. DOI 10.1007/s12160-012-9422-1	The purpose of this study is to pilot test the effectiveness of a culturally adapted diabetes self-management intervention.	Of the 82 randomized participants, 48 were assigned to the Partners in Care intervention and 34 to the wait list control group	two-arm randomized controlled trial (intervention vs. control)	Groups - Partners in Care intervention or a wait list control group	**Finding:** There was significant baseline adjusted differences at 3 months between the Partners in Care and wait for the list control group in intent-to-treat ($p<0.001$) and complete case analyses ($p<0.0001$) for A1c, understanding ($p<0.0001$), and performing diabetes self-management ($p<0.0001$). **Conclusion:** A culturally adapted diabetes self-management intervention of short duration was a practical approach to improving glycemic control among Native Hawaiian and Pacific Islanders.

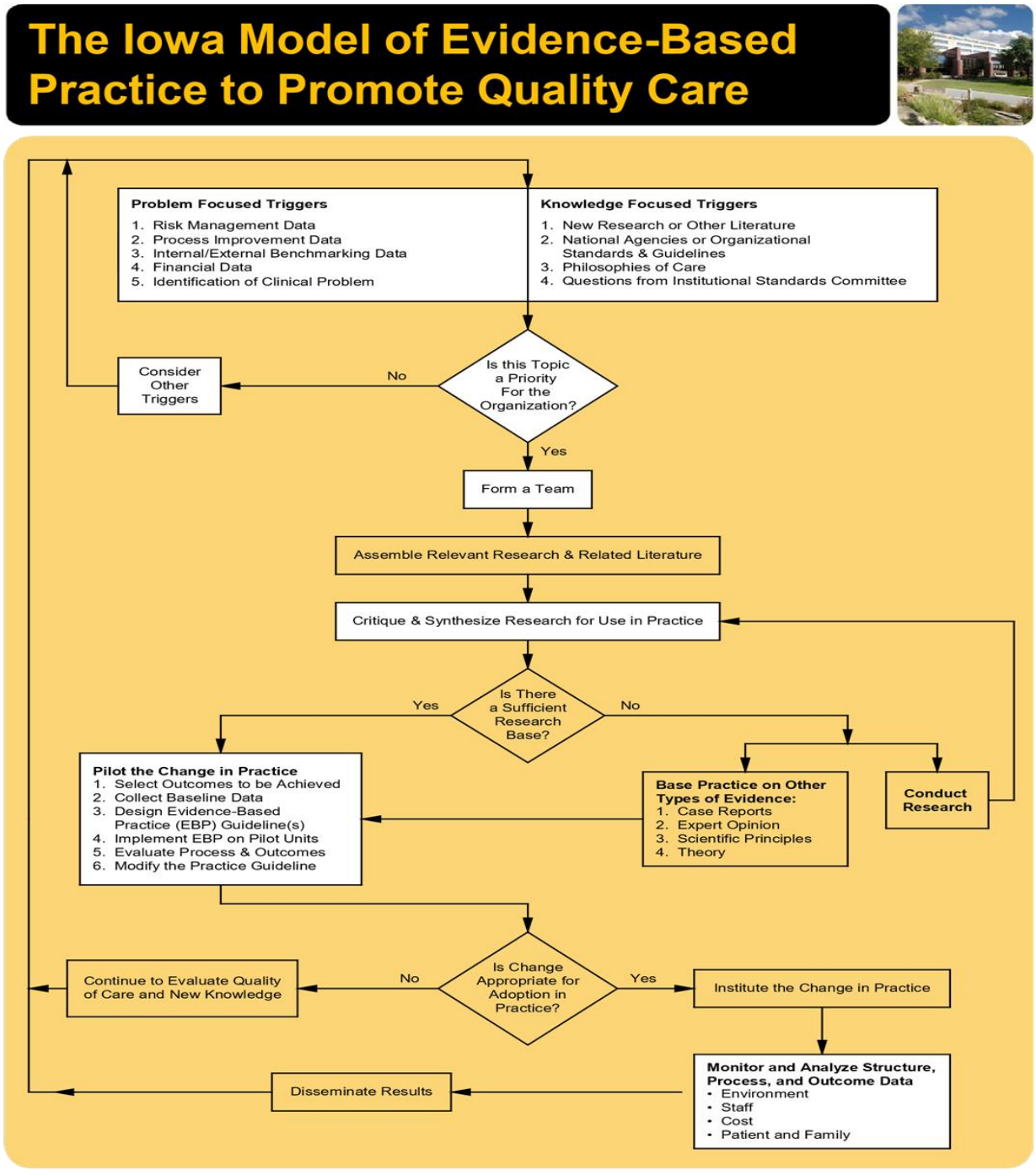
Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Solorio, R., Bansal, A., Comstock, B., Ulatowski, K., & Barker, S. (2015). Impact of a Chronic Care Coordinator Intervention on Diabetes Quality of Care in a Community Health Center. Health Services Research, 50(3), 730–749. http://doi.org/10.1111/1475-6773.12253 Level of Evidence: 4	To evaluate the impact of a clinic-based chronic care coordinator (CCC) intervention on quality of diabetes care, health outcomes, and health service utilization within six community health centers serving predominantly low-income Hispanic and non-Hispanic white patients.	Previous visits with the CCC (664) had no history of visits with a CCC (819) sample of 1,483 total patients	retrospective cohort study	A 12 month pre- and 12-month postintervention analysis	**Finding:** The CCC intervention led to improvements in process measures, including more laboratory checks for Hgb AIC levels, microalbuminuria screens, retinal and foot exams, and increased primary care visits. However, the intervention did not improve metabolic control. **Conclusion:** CCC interventions showed promising improvement in process measures within community health centers but needed to be modified to improve metabolic control.
Udlis, K. (2011). Self-management in chronic illness: concept and dimensional analysis. Journal of Nursing and Healthcare of Chronic Illnes. Retrieved from doi:10.1111/j.1752-9824.2011.01085.x Level of Evidence: 1	To define self-management in chronic illness and explore the concept.	40 articles	systematic review	Literature review	**Finding:** Nurses played a significant role in creating strategies in caring for patients with chronic conditions due to patients having self-worth and a better quality of life. **Conclusion:** The literature review concluded that self-management begins with knowledge, resources, adherence to a plan, active participation, and informed decision-making.

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Uhlig, K., Leff, B., Kent, D., Dy, S., Brunnher, K., Burgers, J. S., Greenfield, S., Guyatt, G., High, K., Leipzig, R., Mulrow, C., Schmader, K., Schunemann, H., Walter, L., Woodcock, J., & Boyd, C. (2014). Framework for crafting clinical practice guidelines that are relevant to the care and management of people with multimorbidity. J Gen Intern Med 29 (4) 670-9 DOI:10.1007/s11606-13-2659-y. Level of Evidence: 5	The focus was on CPGs relevant to treatment and interventions, rather than on evaluation and diagnosis.	Clinical Practice Guidelines and Systematic Review	Systematic review	Systematic review	**Finding:** The results showed that since most patients have more than one illness, a single process outline would not work. CPGs collected information and developed recommendations for consideration of multimorbidity in the development of Clinical Practice Guidelines. **Conclusion:** CPGs practice that was useful for patients with comorbidities were presented.
Vetter-Smith, M., LeMaster, J., Olsberg, J., Kruse, R., Day, T., & Mehr, D. (2012). Providing diabetes self-management support in rural primary care clinics with nurse partners. Western Journal of Nursing Research. https://doi-org.eres.library.manoa.hawaii.edu/10.1177/0193945911436106 Level of Evidence: 6	This study examined the roles and effectiveness of nurse partner–provided diabetes self-management (DSM) support in five rural primary care clinics.	4 - LPNs 1 – RN	quantitative	Interview	**Finding:** Between the first and last 6-month periods, the frequency of blood glucose testing significantly improved from 4.46 to 5.71 days per week ($p = .0006$). **Conclusion:** In summary, provider buy-in was critical in using LPNs as care coordinators to provide DSM support. Future interventions should encourage providers to maximize utilizing the time and skills of a nurse care coordinator who had appropriate training. Also, having to provide time and space for a nurse to work with patients without being interrupted and find a way that works best for their clinic to have a nurse partner work into the clinic workflow and still carry out DSM support.

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Wang, C-Y., Braginsky, N., & Leake, A. (2014). Glycemic Relapse in Uninsured Asian-Americans/Pacific Islanders with Diabetes. J Nurs Care. Retrieved from doi:10.4172/2167-1168.1000139 Level of Evidence: 5	The purpose of this study is to examine the rate of glycemic relapse in uninsured Asian-Americans and Pacific Islanders attending the diabetes clinic of a community health center in Honolulu, Hawaii.	111 patients (60 females and 51 males)	Qualitative	Talk story Chart review	**Finding:** The average age ranged from 22-year-old to 81-year-old, with a mean of 58.91 (SD=9.63) year-old. Levels of HbA1C and LDL were computed at 3 ± 1 months, 6 ± 1 month, 9 ± 1 months, and 12 ± 1 months. Compared with the initial visit, Hgb A1C and LDL at 3-month and/or 6-month follow-up visits significantly decreased. **Conclusion:** Demonstration and explanations about diabetes management had been utilized in a group and individual education and counseling culturally tailored for diabetes education sessions.
Wang C, Gandall-Yamamoto P, Domingo N, Mcphee A (2017). Use of tracking test results via health electronic record (HER) to engage patients in diabetes self-management. J Prev Med Health 1(2): 1007 Level of Evidence: 6	To utilize the visual display of the Hgb A1c trend on the electronic medical record to initiate provider-patient interaction based on the Chronic Care Model.	176 patients	Quality Improvement	Chart review - comparing the laboratory results at pre- and post-intervention	**Finding:** There were improvements in patient's Hgb A1c; however, it showed that older patients had not shown much change than younger patients. **Conclusion:** This study showed improvement in patients' A1c based on the chronic care model; however, since this was focused on quality improvement, there was no comparison group.

Citation & Level of Evidence	Aim/Purpose	Sample	Study Type	Screening Tool	Findings/Conclusion
Wolber, T. & Ward, D. (2010). Implementation of a diabetes nurse case management program in a primary care clinic: a process evaluation. Journal of Nursing and Healthcare of Chronic Illness banner. Retrieved from https://doi.org/10.1111/j.1752-9824.2010.01051.x Level of Evidence: 6	To evaluate the design and implementation of a diabetes nurse case management program in busy primary care practice.	Four nurses	Quantitative	Chart review and nurse interviews	**Finding:** This study identified a promising model to implement nurse case management in primary care. Early outcome resulted in favor of dissemination across the organization. Adaptation of this program to other settings was possible using process evaluation planning. **Conclusion:** Key attributes necessary for successful implementations included embracing principles of the redesign at all levels, access to a central database and electronic medical records for time efficiency, constant redistribution of tasks among team members, continuous constructive feedback to reach nurse competency, and a frank discussion of nursing scope of practice and autonomy.

Appendix C – Iowa Model



Titler, M.G., Kleiber, C., Steelman, V.J., Rakel., B. A., Budreau, G., Everett, L.Q., Buckwalter, K.C., Tripp-Reimer, T., & Goode C. (2001). The Iowa Model Of Evidence-Based Practice to Promote Quality Care. *Critical Care Nursing Clinics of North America*, 13(4), 497-509.

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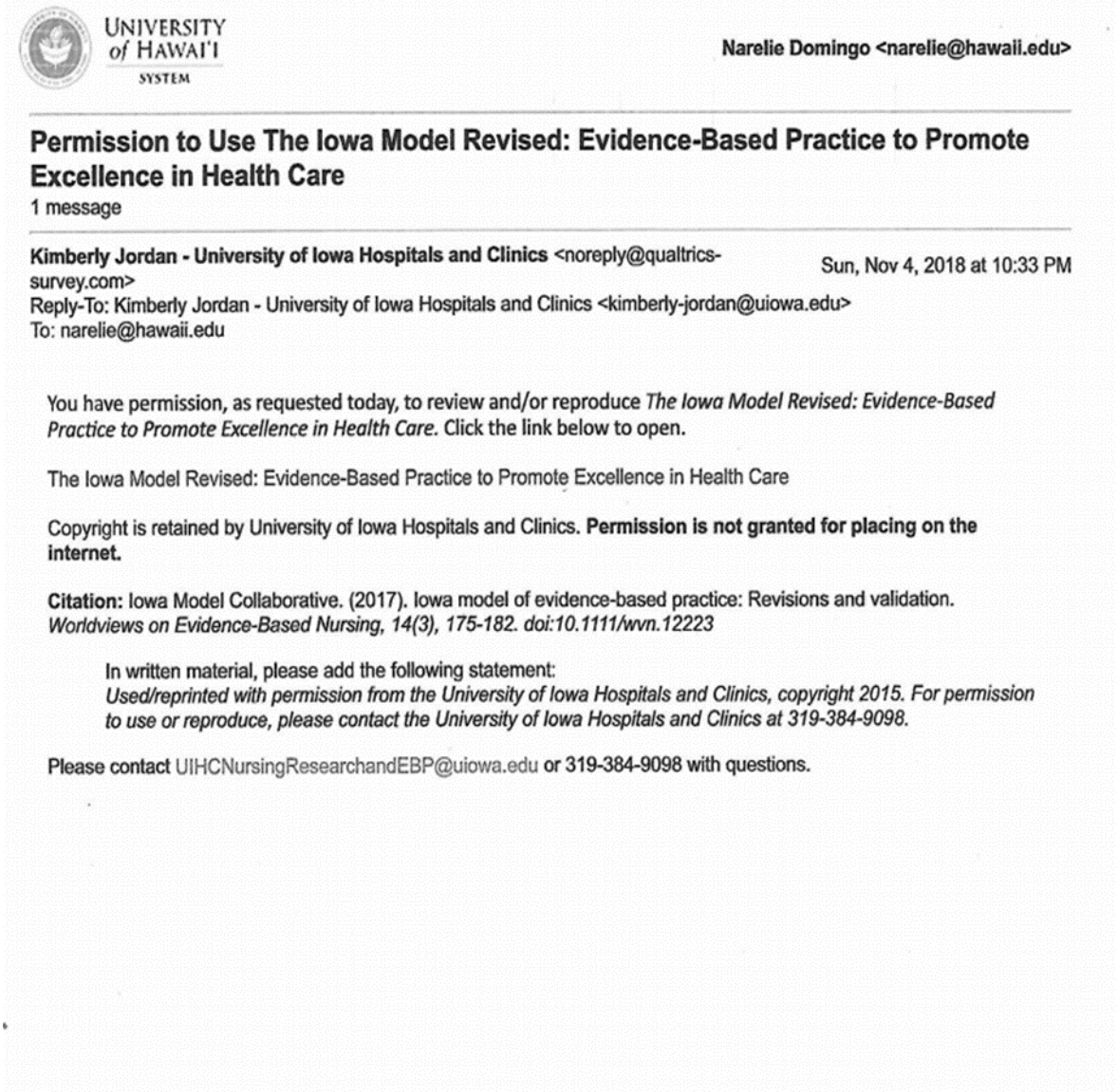
Appendix D - Permission to use Iowa Model



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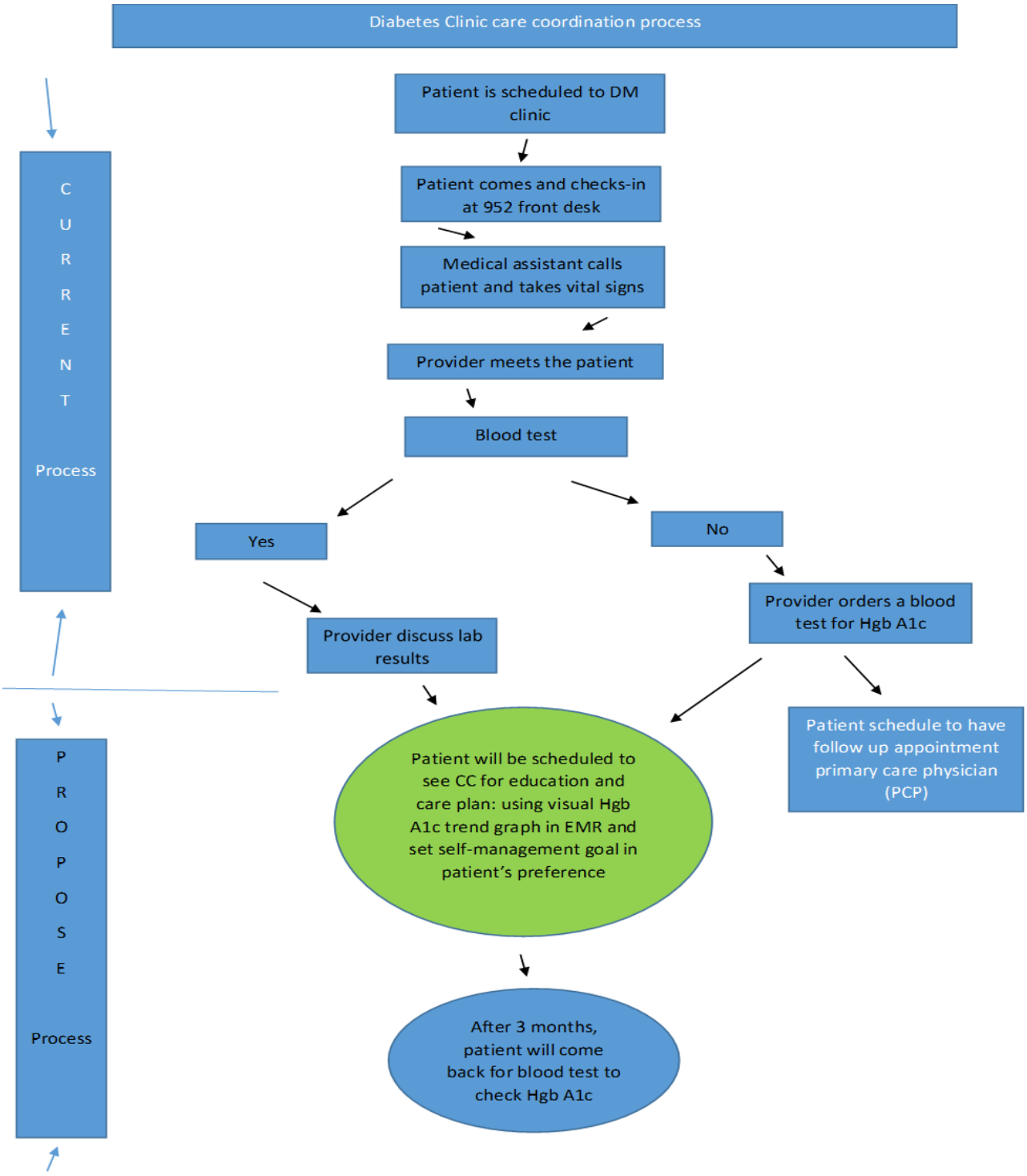
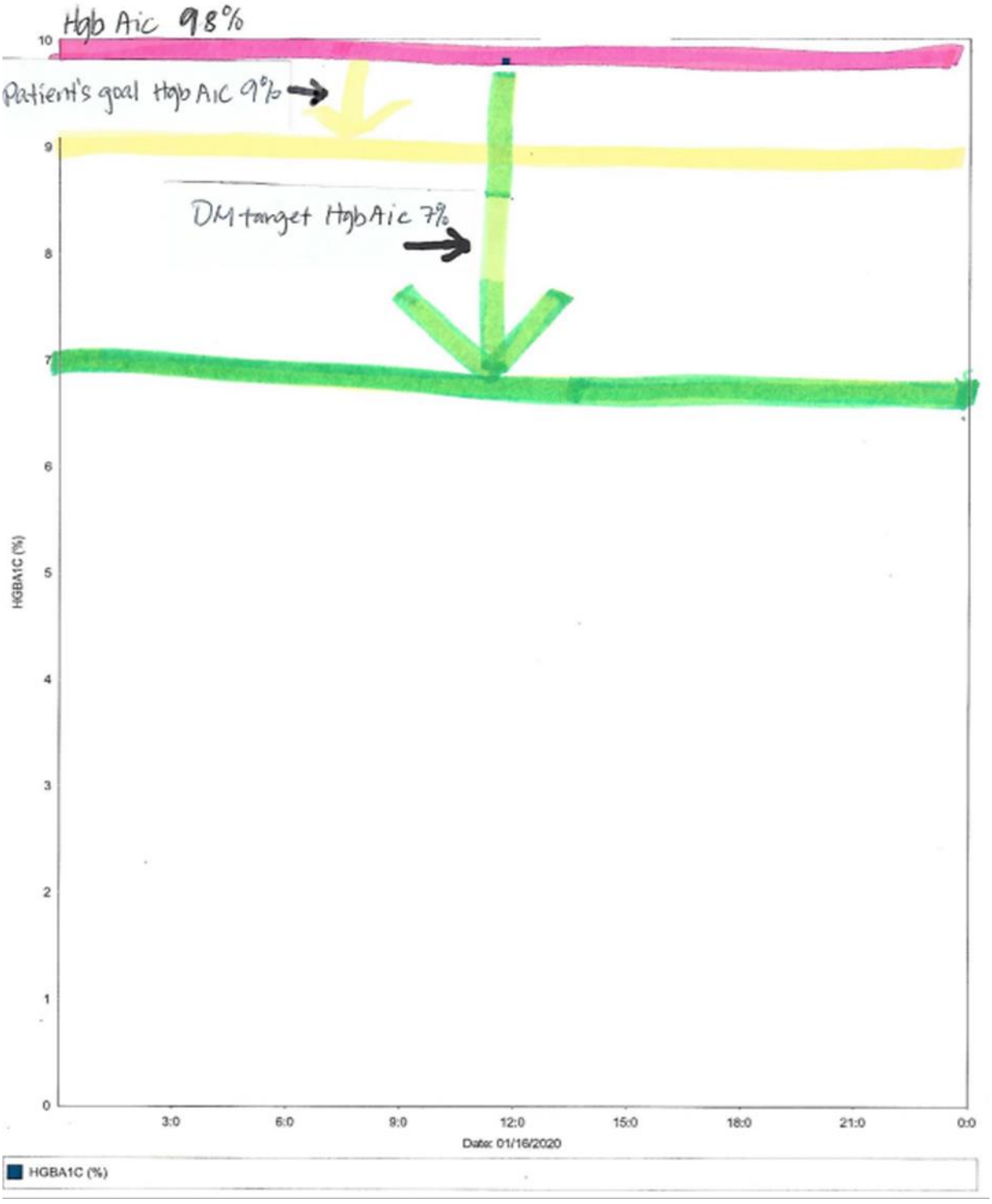
Appendix E – GANTT Chart

Objective/Aim	Sub-Tasks	Responsible Person	Due Date	Comments
Major Task #1: By January 2019, facility in where the project will be conducted will be identified; potential topic will be discussed and approved by the clinical operation director of Kahili Palama Health Center				
Identify the location and assess for potential project.	-Set a schedule to meet with the clinical operation director of Kalihi Palama Health Center to ask approval. -Determine task or process that is important to the facility.	DNP student/clinical	1/7/19-1/31/19	
Write the project goal and objectives	SMART goal, Methods, Procedures and submit to the professor for feedback	DNP student	1/14/19-1/31/19	
Contact and meet with content export	For approval Discuss DNP Project	DNP student, Content expert	1/17/19-1/31/19	
Major Task #2: February 2019, meet and plan with the involve personnel in the project				
DM clinic provider	Discuss propose process for care coordinators process	DNP student, DM clinic provider	1/15/19-2/28/19	
Care coordinators' supervisor	Meeting with the care coordinators to identify current process	DNP student, Care coordinator	1/28/19-2/28/19	
Major Task #3: By March 2019/2020, complete and submit the proposal paper for the project to the chair				
Pertinent information	Compile all pertinent information for the project and place in one folder	DNP student	2/20/19-3/15/19	
Meet with content expert and professor	Discuss process proposal	DNP student, content expert	3/1/19-3/31/19	
Submit DNP proposal paper	Finalize DNP proposal paper and send to chair, content expert, and reader	DNP student	2/17/20-3/21/20	
Presentation	Present proposal project to chair, content expert, and reader	DNP student	3/21/20	
Major Task #4: By May 2020, meet with the supervisor and the care coordinators or nurses to present the project / implement the process				
Meet with the supervisor	Discuss the proposal process of the project	DNP student / CC supervisor	5/1/20-5/30/20	
Pre/posttest and training	-Identify CCs confidence level regarding EHR Hgb A1c trend analysis patient education and assisting patients in developing self-management goals on their preference by completing a pre-test and post-test. -Train care coordinators on how to educate patients on Hgb A1c trends using EHR and assisting patients in setting self-management goal using their preferences during the care coordination care planning	DNP student / supervisor / care coordinators	5/1/20-5/30/20	Provide lunch or refreshment for the staff – cancelled d/t COVID-19
Major Task #5 By June 2020, care coordinators will continue to implement propose process at the DM clinic.				
Implementation	-Patients who come to DM clinic and diagnosed of diabetes will be scheduled to meet with the care coordinator. -Care coordinator will utilize Hgb A1c trends analysis in EHR to educate the patient and assisting patient to identify preference on the self-management goal. -Care coordinator will set a follow up appointment for the patient to come back in 3 months for blood test either at the DM clinic or the primary care provider	Care coordinators or nurses	5/1/20 – 8/31/20	Friendly contest for the CC of who has the most patients that being care coordination – Did not
Visible	The lead nurse will be visible to care coordinators and to receive feedback or update with the process.	DNP student/CC	6/1/20 – 8/31/20	Goal – reminder for the CC of the process Give small things for appreciation during the visit
Log	CC supervisor/QI staff will run a report DNP student will create an excel log for patient's list for baseline information	DNP student	6/1/20 – 8/31/20	
Major Task #5 By November 2020, data will be collected, gathered, and analyst				
Meeting	Meeting with care coordinators to receive feedback from the care coordinators and other staff	DNP/CC	10/1/20-10/30/20	Provide refreshment or lunch for the CC
Data	Supervisor runs a report of Hgb A1c via EHR with patient's MR number Collect and compile all the data and create a graph to show the outcome	CC supervisor / DNP student	6/1/20-11/30/20	
Final Meeting with care coordinator/content expert/chair	Present the final results of the project to the care coordinator/content expert/chair and give feedback with the results	DNP student / content expert / chair	11/15/19-11/30/19	Provide lunch for the CC and others Give away the prize

Appendix F - Old Algorithm



Appendix G – Sample - Hgb A1c Graph



Appendix H: Revised SMG Contract

KALIHI-PALAMA HEALTH CENTER
Hale Hoʻola Hou - House of New Life
www.kphc.org

Diabetes Self-Management Goal Contract

Name: _____ **Date of Birth:** _____ **Date:** _____

Small Changes are OK!

My goal is: Hgb A1c: below 7% _____ High Blood Pressure: 140/80 _____ Cholesterol: below 200____
My last Hgb A1c: (_____) _____ **High Blood Pressure:** (_____)_____ **Cholesterol:** (_____) _____

Medications:


___ Take my medication as directed
___ Pick up my refill ahead of time
___ NOT sharing my medication(s) with others
___ Bring all my <u>medications every doctor visit</u> and when I travel
_____

Nutrition:

___ Eat more vegetables and small portion of fruits
___ Drink more water and less sodas
___ Decrease to half cup of rice, 1 slide of bread / taro / breadfruit, 1 pc of cooking banana
___ Eat in small portion
___ Make sure that I do not miss my meal

Physical Activity:


___ Walk/jog/swim for 30-45mins 4-5 times week
___ Stretch 15-30 mins twice a day 4-5 times
___Other: physical activity such as _____
_____
_____

Other:



_____ Check my blood sugar _____ time a day.
_____ Log blood sugar results and bring it every visit.
_____ Check feet every day.
_____ Eye check annually
_____ Decrease cigarettes to _____ sticks

Barriers:

_____ Forget to take my medicine
_____ No babysitter, transportation, time to pick up the medicine
_____ Do not have money to buy food or pay my bills
_____ No medical insurance
_____ Raining / conflict of work schedule
_____Other: _____

Solution:

___ Set an alarm for reminder and place my medicine where I can easily see it.
___ Have my family member or friend to pick up my medicine.
___ Apply for food stamp and financial.
___ Apply for medical insurance and sliding scale
___ In door physical activity: stretching/dancing/Zumba
___Other:
_____

Confidence: How confident are you that you can accomplish your personal goal? (Rate your confidence level on a scale of 1 to 10 being completely confident)

1 2 3 4 5 6 7 8 9 10

Kphc.org - https://medshadow.org/diabetes-medications/ - https://www.medicalnewstoday.com/articles/316618.php - https://www.nytimes.com/2018/01/19/travel/how-to-make-sure-you-travel-with-medication-legally.html - https://www.onetouch.com/facts-about-diabetes/diabetes-management/diabetic-foods-and-diet-plans - https://www.ebrookfitness.co.uk/obesity/obesity-in-samoa - https://www.wikihow.com/Do-the-Dead-Bug-Exercise#/Image:Do-the-Dead-Bug-Exercise-Step-7.jpg - https://www.medicalnewstoday.com/articles/317536.php - https://www.crh.org/healthy-tomorrow/healthy-tomorrow/2018/10/24/diabetic-foot-care - https://www.straitstimes.com/lifestyle/go-for-regular-eye-check-ups - https://emojiisland.com/products/sad-face-emoji-icon - https://emojiisland.com/products/slightly-smiling-face-emoji-icon. Revised: 4/24/19

Patient's Signature: _____ **Date:** _____
Care coordinator's signature: _____ **Date:** _____

Appendix I – Care Coordinator's Pre-and Post-Test

Kalihi Palama Health Center Care Coordinator's Pre-and Post-test

This pretest and posttest are to determine care coordinators confidence in engaging patient by utilizing Hgb A1c trends using EHR and developing a self-management goal using revised and translated SMG contract based on patient preference.

On this pre-and post-test, please rate your confidence 1 as less confident to 5 as very confident

1) I am aware and knowledgeable about the Hgb A1c graphs in EHR.				
1	2	3	4	5
1) I feel confident teaching patient using a visual graph about Hgb A1c trend via EHR.				
1	2	3	4	5
2) I allow the patient to choose on his/her preferences when setting a self-management goal, and I complete and indicate in the patient care plan.				
1	2	3	4	5

Appendix J – Patient's Pre/Post Test

Patient's Pre-and Post-test

Please rate your confidence 1 as less confident to 5 as very confident.

1) How confident are you maintaining to carry out your self-management goal?

1	**2**	**3**	**4**	**5**

2) What is your understanding of the relationship between confidence in carrying out your goal and the blood sugar level?

1	**2**	**3**	**4**	**5**

Appendix K – Post-Implementation Survey

1) After implementing the process, how confident are you in engaging patients using Hgb A1c trends via EHR and developing self-management goals based on patient preference and plan to continue from the scale of 1 to 10?
One as less confident to 10 as greatly confident.

1 2 3 4 5 6 7 8 9 10

2) Of all the patients you have encountered, how many percent of your patients have Hgb A1c?
(_____%) below 7%
(_____%) 7.1% - 10%
(_____%) 10.1 % and greater

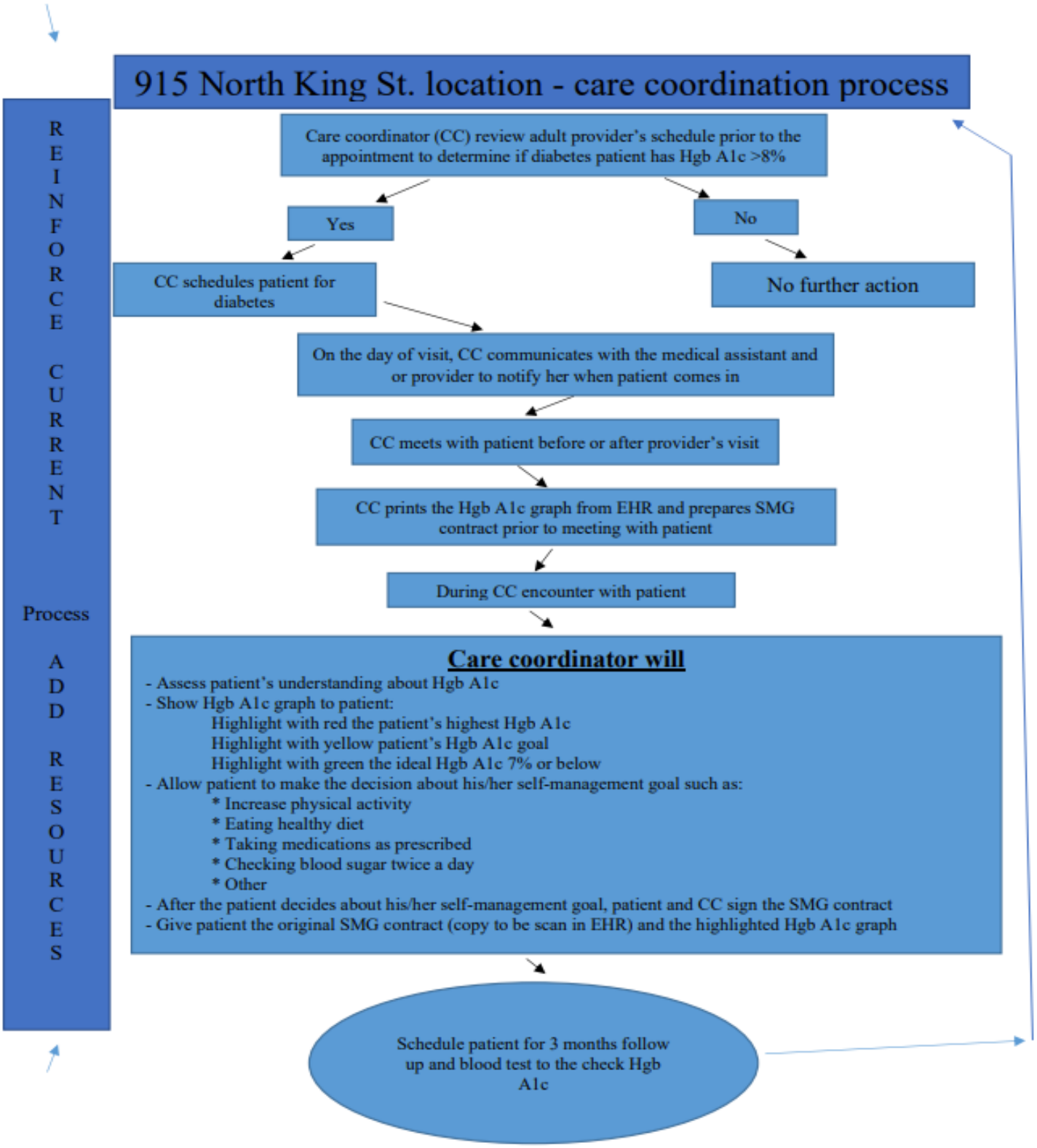
3) Of all the patients you have encountered, how many percent of ethnicities that you have encountered?
(____%) Caucasian
(____%) African American
(____%) Pacific Islander
- (_____) Hawaiian
- (_____) Samoan
- (_____) Tongan
- (_____) Chuukese
- (_____) Marshallese
- (_____) Pohnpeian
- (_____) Kosrae
- (_____) Other

(____%) Asian
- (_____%) Filipino
- (_____%) Korean
- (_____%) Vietnamese
- (_____%) Chinese (Mandarin/Cantonese)
- (_____%) Thailand
- (_____%) Cambodian
- (_____%) Other: _____

(____%) Other

4) Do you have any suggestions to improve the process? Please comment.
_____
_____

Appendix L – New Algorithm



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