

QUALITY INITIATIVE TO INFORM DIALYSIS MODALITY SELECTION FOR  
VETERANS WITH ADVANCED KIDNEY DISEASE

A Doctor of Nursing Practice Project Report

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of

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This Doctor of Nursing Practice Project Report meets the standards for scope and quality of Texas A&M University-Corpus Christi College of Nursing and Health Sciences and is hereby approved.

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August 2021

## DEDICATION

I would like to dedicate this Quality Improvement project to all the veterans for their sacrifice, bravery and dedication to protect the nation. I would also like to dedicate this project to all the Healthcare workers around the world who take care of kidney disease patients. Lastly, I would like to dedicate this work to my husband Cijo, my kids Noah and Nehemiah, and my parents for their unending support and prayers throughout this journey.

## ACKNOWLEDGEMENTS

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## ABSTRACT

Chronic kidney disease (CKD) is the ninth leading cause of death in the United States. Approximately two million people worldwide suffer from kidney failure requiring dialysis, and the number of patients diagnosed with the disease continues to increase at a rate of 5-7% per year. Despite the significant benefits of home-based dialysis (HBD) over in-center dialysis, HBD continues to be an underused modality worldwide. Underutilization is largely the result of an existing knowledge gap regarding dialysis options in advanced kidney disease patients. The purpose of this quality improvement project was to determine if a structured educational program implemented in a nephrology clinic serving veterans increased patients' awareness and knowledge of the different dialysis modalities, increased informed selection of the HBD modality and improved provider adherence to providing the education. A before-after design structured clinical education was used to deliver a three-session educational program using interactive PowerPoint presentations, videos, and online educational tools. Thirteen patients received the educational program either in person or via phone call or telehealth visit over the three-month project period. Post-intervention, participants' Kidney Knowledge Survey (KiKS) score significantly increased ( $t(12) = -12.84, p = <.001, d = 3.08$ ); participants selecting HBD as their modality choice increased 46%; and providers' adherence to education delivery reached 81%. Planned and timely discussions educating advanced kidney disease patients and their families about all dialysis modalities, including HBD, should be consistently provided to maximize informed decisions and quality of life.

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# Quality Initiative to Inform Dialysis Modality Selection for Veterans with Advanced Kidney Disease

## INTRODUCTION

Chronic kidney disease (CKD) is the ninth leading cause of death in the United States (U.S.), accounting for about 134,165 deaths per year. Chronic kidney disease is a progressive condition that advances through early stages and terminates in advanced kidney disease and kidney failure requiring chronic dialysis treatment or kidney transplantation (Centers for Disease Control and Prevention [CDC], 2019). According to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK, n.d.) the occurrence of CKD is estimated to be 34% higher in the veteran population when compared to the general population. The Veterans Health Administration (VHA) currently cares for over 600,000 veterans with kidney disease, and it is estimated that over 15,000 veterans receive dialysis (NIDDK, n.d.). The Kidney Disease: Improving Global Outcomes (KDIGO) Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease is used for evaluation, classification, and stratification of kidney disease (KDIGO, 2013). Chronic Kidney Disease is classified from Stage I through Stage V, which eventually progresses into advanced kidney disease and End Stage Renal Disease (ESRD) (KDIGO, 2013). It is estimated that 695.5 million people worldwide is affected by kidney disease (Bikbov et al., 2020) and two million people worldwide suffer from ESRD (University of California San Francisco [UCSF], 2018). The number of patients diagnosed with the disease continues to increase at a rate of 5-7% per year (UCSF, 2018). Treatment options for ESRD include dialysis treatments, kidney transplant or conservative management. Dialysis treatments can be administered as hemodialysis available in an in-center or home setting, or

peritoneal dialysis (PD). Peritoneal Dialysis is the most common home-based dialysis (HBD) modality (Tennankore et al., 2014).

In the United States, 86.9% of patients began renal replacement therapy with in-center hemodialysis, only 10.1% started with PD (United States Renal Data System [USRDS], 2019). It is reported that HBD has more benefit over in-center dialysis treatments in blood pressure regulation, regression of left ventricular hypertrophy, restoration of left ventricular ejection fraction, normalization of phosphate control, and certain aspects of quality of life related to kidney disease (Tennankore et al., 2014). Despite their significant benefits, HBD therapy including PD and home hemodialysis are underused dialysis modalities in the U.S. Also, the global utilization of PD has remained less than 15% for the past 40 years (Li et al., 2016). Low patient awareness and education regarding dialysis modalities has been identified as a major barrier to increasing the use of home dialysis in the U.S. (Chan et al., 2019). Implementation of a standardized education program to bridge this knowledge gap is the focus of this project. The purpose of this project is to integrate a structured educational program to increase informed selection and use of HBD modalities in veterans with advanced kidney disease. Utilization of HBD modalities could offer improved survival, health, and lifestyle advantages for dialysis patients.

## **Background**

Chronic Kidney Disease is common among U.S. veterans and its true prevalence is thought to be underestimated. A retrospective study by Singh et al., (2018) determined that, the prevalence of veterans with CKD was 378,233 (6.1%) in 2015. They also reported that prevalence of CKD increased by 49% from 132,979 (2.30%) in 2011 to 213,444 (3.42%) in 2015. This study also identified prevalence of veterans on dialysis was 150,298 (2.4%) (Singh et

al., 2018). A randomized controlled study by Culleton et al. (2007) revealed that compared with conventional or in-center hemodialysis, frequent nocturnal dialysis via PD improved left ventricular mass, reduced the need for blood pressure medications, improved mineral metabolism, and quality of life. Home based dialysis significantly increases quality of life for ESRD patients (Tennankore et al., 2014). A patient receiving hemodialysis at a facility usually spends three to five hours, three days per week in a facility, not including time spent driving to and from the facility. This schedule makes it difficult for a dialysis patient to remain employed. Six months after starting in-center dialysis, only 43% of people can maintain the same level of employment (Muehrer et al., 2011). On the contrary, the ability to dialyze at home improves quality of life by increasing independence and ability to work, allowing greater financial freedom and psychological well-being (Muehrer et al., 2011).

Home based dialysis can also offer clinical benefits by allowing patients to dialyze more frequently than the conventional three days per week schedule. According to the USRDS (2013), dialysis treatments thrice weekly may be inadequate for addressing the critical problems of persistent fluid overload, hypertension, and left ventricular hypertrophy which are common in ESRD patients. A study by Fagugli et al. (2001) determined that short daily hemodialysis is better than conventional hemodialysis at regulating blood pressure and reversing left ventricular hypertrophy. The 2019 USRDS Annual Data reports that overall mortality rates among ESRD patients have consistently declined over the last 16 years, with net reductions in mortality from 2001 to 2017 of 27% for hemodialysis patients and 42% for PD patients. By dialysis modality, mortality rates were 167 per 1,000 patient-years for hemodialysis patients and 156 per 1000 patient-years for PD patients.

## **Review of Literature**

The existing gaps in kidney disease patients' knowledge regarding dialysis options has resulted in underutilization of HBD modalities in the U.S. Studies have shown that implementation of the education programs impacted patients' awareness and knowledge of home dialysis and increased HBD modality selection (Chan et al., 2019). A retrospective observational study by Maar et al. (2016) conducted in patients (n=102) who received pre-dialysis education in the Netherlands identified a knowledge gap in pre-dialysis patients when choosing the dialysis option. In a study by Wright et al. (2011a), patients under the care of a nephrologist with three appointments a year, 25% (n=232) reported they knew little or nothing about why they were sent to the nephrologist. A cross-sectional survey study administered by Molnar and associates to evaluate knowledge among patients with kidney disease concluded that more than 60% (n=125) of patients perceived themselves to know nothing or only a little about medications that help or hurt the kidney. Additionally, they found older age was independently associated with less knowledge (Molnar et al., 2020). Thus, the literature demonstrates the need for educational interventions to increase awareness of dialysis options helping patients to identify the advantages of home dialysis, likely increasing its selection.

The literature also indicates educational intervention can influence the selection of HBD options. A retrospective cohort study held at a large hospital in Saudi Arabia found a significant increase in selection of HBD after educational intervention. Among patients who received pre-dialysis education program, 57.3% (n=75) and 42.7% of patients decided to perform hemodialysis and PD respectively compared to non-intervention group 90.6% (n=138) and 9.4% selecting hemodialysis and PD respectively (Alghamdi et al., 2020). Several systematic reviews and meta-analyses concluded there was a significant association between educational interventions and the increase in the selection of HBD modalities (Devoe et al., 2016; Hardwood

& Clark, 2013; Lecouf et al., 2013). A prospective cohort study conducted by Maaroufi and colleagues in dialysis patients reported 25% to 40% of patients (n=228) would have selected home dialysis if given the opportunity (Maaroufi et al., 2013). A study conducted by Mehrotra et al., (2005) in 225 dialysis units examined the effect of pre-ESRD processes on the selection of dialysis modality among incident ESRD patients. This study identified two variables that were significantly associated with the selection of PD: presentation of PD as a treatment option ( $p=.02$ ) and the amount of time spent in discussing treatment options ( $p=.02$ ) (Mehrotra et al., 2005). A randomized controlled trial by Manns and associates (2005) was conducted in CKD patients (n=70) who were receiving care at a multidisciplinary pre-dialysis clinic. Patients were randomized to receive either a two-phase patient-centered educational intervention or ongoing standard care. The study concluded receipt of an educational intervention was associated with an increase in HBD modality selection (82.1%) compared to standard care (50%,  $p = .015$ ) (Manns et al., 2005).

### **Problem Description in the Setting**

In our VHA organization, significantly low number of patients selected HBD as their treatment of choice for dialysis. Therefore, an organizational assessment was conducted to determine the need for a quality improvement (QI) initiative to increase the selection of HBD. Data was analyzed from the dialysis veterans' database to identify patients who were currently receiving dialysis at VHA contracted community dialysis facilities. In a review of approximately 2300 CKD patients currently receiving care at the facility, 440 were found to be on dialysis as of May 2020. The total number of patients receiving HBD were 25 and patients receiving in-center hemodialysis were 415. This data identified that 5.6% (n=440) of the dialysis veterans under the care of this VHA facility were performing HBD and the remaining 94.4% were receiving in-

center hemodialysis. This data demonstrated a potential gap in practice, that led to lower HBD modality selection. The potential gap in knowledge of the respective dialysis choices could be a factor in the smaller percentage of facility patients choosing HBD modalities (Manns et al., 2005). The nephrology providers in our facility typically informed the patients of dialysis choices while they were approaching CKD Stage V. This information was provided briefly during one of the follow up clinic visits, typically done in under 15 minutes, as noted by provider feedback. Patients may not comprehend this important information to then decide regarding the choice of dialysis modalities (Mehrotra et al., 2005). After consultation with the Chief of Nephrology Department, the project director concluded that dialysis modality related education provided to the advanced kidney disease patients may not be adequate in the current clinic practice.

Therefore, this quality improvement project aimed to improve patients' understanding of available dialysis modalities to then make an informed decision on the modality selection. This project also aimed to increase the provider adherence to advanced kidney disease patient education in their clinics. A change in practice of the nephrology providers in the facility is imperative in promoting informed dialysis decision-making among advanced kidney disease patients. An executive order to implement the Advancing American Kidney Health Initiative (AAKI) was launched in June 2019. One of the goals of this initiative is to have 80% of new ESRD patients in 2025 either receiving dialysis at home or receiving a kidney transplant (U.S. Department of Health and Human Services, 2019). The VHA Handbook for dialysis programs recommends increasing informed dialysis modality decision-making and increase in HBD among the veterans with advanced kidney disease (Veterans Health Administration, 2016).



Implementation of a structured education program can bridge the existing knowledge gap, allowing informed decision-making regarding dialysis options.

### **Project Purpose and Aims**

The purpose of this project was to determine if a structured educational program can increase awareness and knowledge of different dialysis modalities, increase informed selection of HBD modality and improve provider adherence in educating veterans with advanced kidney disease. The clinical question that guided this QI project was: In veterans with advanced kidney disease, does a three-month structured educational program increase knowledge of kidney disease and dialysis modalities, increase informed selection of HBD modality, and improve provider adherence to patient education? The specific aims were as follows:

Aim#1: To increase knowledge of CKD and different available dialysis modalities among veterans with advanced kidney disease. The modified version of the Kidney Knowledge Survey (KiKS) was used to measure knowledge of kidney disease (Molnar et al., 2020). The specific goal was to increase post-education kidney disease and dialysis modality knowledge mean difference score by at least three points and/or to find a statistically significant increase in knowledge after the intervention compared to before.

This goal was supported by several studies (Haris et al., (2018); Tzeggai et al., (2020); Uhland (2018); Welch et al., (2016); Wembenyui, (2017)), which used the KiKS to evaluate kidney disease knowledge using pre-post design and found a statistically significant increase in post mean knowledge score or found an increase of mean score by at least three points after the intervention.

Aim#2: To increase the number of participants selecting HBD as their choice of modality. The number of patients selecting HBD was monitored using monthly chart reviews.

Pre- and post-intervention home dialysis selection were compared using chart reviews as well. The specific goal was to achieve at least 50% of eligible patients choosing HBD modality and/or to find a statistically significant increase in the number of patients who choose HBD by the end of the project. In support of this goal, Ribitsch et al. (2013) and Levin et al. (1997) who conducted pre-dialysis education program in Nephrology clinic settings identified more than 50% of participants selecting HBD post-intervention.

Aim#3: To improve provider adherence to patient kidney education. The provider adherence was measured by conducting chart reviews monthly to determine the number of eligible patients receiving the education. The specific goal was to have 100% of eligible patients receiving dialysis education in the provider clinics. The Clinical Practice Guideline for the management of CKD by VHA recommends modality education to all eligible kidney disease patients (Department of Veterans Affairs & Department of Defense, 2019).

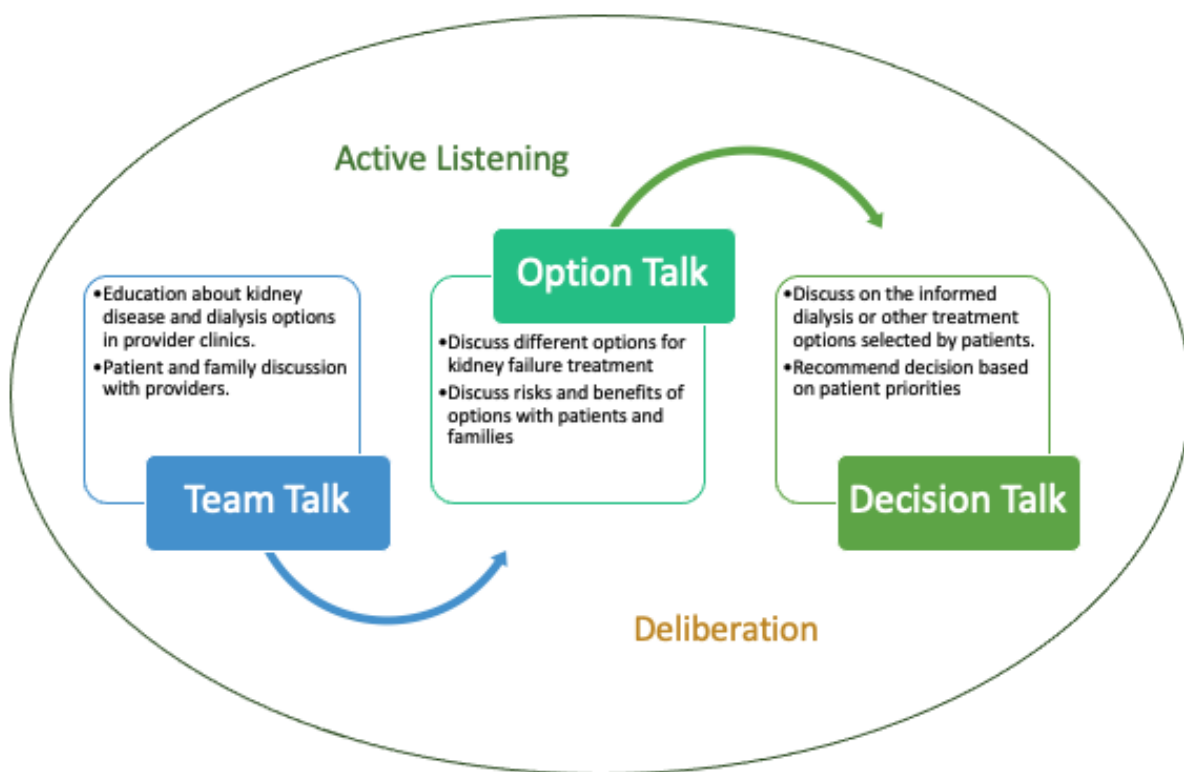
This project focuses primarily on the Doctor of Nursing Practice (DNP) Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking, and DNP Essential VIII: Advanced Nursing Practice. DNP Essential II focuses on assessing the present education interventions, assessing the health needs of the patient population, and developing an intervention that bridges the knowledge gap for informed decision-making on dialysis modality. The emphasis of DNP Essential VIII is to conduct a comprehensive and systematic assessment in complex situations such as dialysis decisions and incorporating culturally sensitive approaches of healthcare delivery to diverse population such as veterans (American Association of Colleges of Nursing, 2006). This project also addresses the Quality Competency of the Nurse Practitioner Core Competency (National Organization of Nurse Practitioner Faculties, 2017) by using the best available evidence to continuously improve

clinical practice, and to evaluate the outcome of quality improvement projects. This quality initiative project seeks to improve the quality of life in veteran patients with advanced kidney disease by improving their knowledge of hemodialysis modalities, benefits, and outcomes.

### **Guiding Frameworks**

The theoretical framework utilized for this project is the Three-Talk Model for Shared Decision-Making (Elwyn et al., 2017). Shared decision-making is more than being attentive to patients' needs or concerns; it represents an important shift in the roles of both patients and clinicians (Elwyn et al., 2017). In essence, shared decision-making is a process in which decisions are made in a collaborative way. Information is provided in accessible formats about a set of options in contexts where patients and their families play a major role in decisions (Elwyn et al., 2017). The HBD decision-making process clearly involves the shared decision-making model between clinicians, patients, and families. This model is based on *team talk*, *option talk*, and *decision talk* to depict a process of collaboration and deliberation. Team talk places emphasis on the need to provide support to patients when they are made aware of choices, and to elicit their goals as a means of guiding decision-making processes. Option talk refers to the task of comparing alternatives and using risk communication principles. Decision talk refers to the task of arriving at decisions that reflect the informed preferences of patients, guided by the experience and expertise of health professionals (Elwyn et al., 2017). See Figure 1 for the Three-Talk Model for Shared Decision-Making.

Figure 1: Representation of Three Talk Model of Shared Decision Making



The Plan, Do, Study, Act (PDSA) was the overarching framework that broadly guided the steps of this QI project. The PDSA was introduced by Walter Shewart in the 1920s, which is the guiding framework for most quality improvement projects. The PDSA is a four-step model for carrying out change and is considered a project planning tool. The PDSA cycle is a systematic process for gaining valuable learning and knowledge for the continual improvement of a product, process, or service. Just as a circle has no end, the PDSA cycle is repeated for continuous improvement (The Deming Institute, 2020). The cycle begins with the *Plan* step identifying a goal or purpose. For this project, this step aimed at a change in practice for Nephrology physicians and Nurse Practitioner (NP) to increase education in veterans with advanced kidney disease regarding informed dialysis decision-making. The second step is the *Do* step, in which the components of the plan are implemented. For this QI project, step two involved providing a

structured educational program to advanced kidney disease veterans in the provider clinics. The next step is *Study*, where outcomes are monitored to test the validity of the plan for signs of progress and success, or problems and areas for improvement. This step focused on analyzing the post intervention dialysis decision-making and improvement in knowledge among participants. The *Act* step closes the cycle, integrating the learning generated by the entire process, which will be used to adjust the goal, methods, or broaden the learning cycle from a small-scale experiment to a larger project. These four steps can be repeated as part of a never-ending cycle of continual learning and improvement (Institute for Healthcare Improvement, 2015).

## METHODS

### **Ethical Considerations**

This project plan was reviewed by the Texas A&M University-Corpus Christi Research Compliance Office and received a determination of “Not Human Subjects Research” and permission to proceed as a QI project (See Appendix B for Letter of Determination from the TAMU-CC Compliance Office). This project was also reviewed and determined to meet the criteria for “Not Human Subjects Research” by the Quality Improvement Assessment Board at Michael E DeBakey VA Medical Center (MEDVAMC) (See Appendix C for QI Determination Letter). Personal Health Information (PHI) was collected for project purposes only following execution of a Health Insurance Portability and Accountability Act (HIPAA) confidentiality agreement from the facility (See Appendix D for HIPAA Confidentiality Agreement). A letter of support was provided by the Ambulatory and Medical Care Line Nurse Executive of the facility to fully support the project and acknowledge collection of PHI for project purposes only (See Appendix E for Facility Letter of Support). The data was collected on a Microsoft Excel

Worksheet and saved to a password protected personal computer. Data will be deleted three years after the project as per IRB policies.

## **Project Design**

This before-after design quality initiative utilized a structured educational program to increase awareness and knowledge of various dialysis modalities and increase the selection of HBD modalities in nephrology clinics at a large VHA Medical Center. The Nephrology department outpatient clinics at the facility were divided between six providers, including five nephrologists and one NP, the project director of this QI project. To determine if there was inadequate dialysis modality education for our patients, I met with the Chief of the Nephrology Department, providers in the department, the Nephrology Nurse Navigator, the social worker, and clinic scheduler. We discussed about the clinic culture and the lack of provider adherence to proper pre-dialysis patient education. We identified that our advanced kidney disease veteran patients were not receiving adequate pre-dialysis education regarding dialysis modalities to make an informed decision on modality choice. During the initial discussion, Nephrology providers were not convinced about the low adequacy of current patient education practice in the facility. Therefore, I conducted an organizational assessment of the problem, which revealed almost 95% of patients were on in-center hemodialysis and only 5% on HBD. I referenced evidence-based studies that identified low patient education and lack of awareness regarding modality choices that led to low home dialysis selection. The PD First Initiative (Chaudhary et al., 2010) and AAKI initiative (U.S. Department of Health and Human Services, 2019) which primarily focus on increasing home dialysis in the U.S. were also highlighted during the discussions. After the initial discussion, few of the providers agreed there was a problem and were interested in the project. After few more one on one discussions, all the providers agreed to start pre-dialysis

education for advanced kidney disease patients in their respective clinics. The pre-and post-intervention survey was administered in the NP clinic whereas education was provided in all provider clinics. The dialysis director of the facility, who is also a nephrology provider was very supportive of the QI project. The Chief of the Nephrology Department and the Nurse Executive also promised resources and support for the project.

Various potential barriers could have affected the success of this QI project. One of the major barriers anticipated was patient non-acceptance of dialysis modality education. This was thought to be due to the misconception that attending education sessions leads to early dialysis initiation. To mitigate this problem, we explained to patients that education sessions were for informational purpose and would enable them in informed decision-making about dialysis modality. It was also explained that knowledge of kidney disease would enable increased self-management (Chuang et al., 2020). Another potential barrier was the current COVID-19 pandemic that affected scheduling patients for clinic appointments. There were restrictions on bringing patients into the clinic for face-to-face appointments. This was mitigated by video conferencing arrangements with the participants and interventions created for online learning at the convenience of the participants. Another barrier faced was the difficulty in provider buy-in for the education program. The project director arranged one on one discussions and information session with the five providers. An effective communication strategy with team-based approach was used to minimize this barrier (See Appendix A for the Risk Assessment Tool).

### **Intervention**

The nephrology providers who cared for CKD patients, the renal department staff including the clinic scheduler, the nurse navigator and the social worker were introduced to the project and educated on the importance of pre-dialysis patient education. Out of the ten

nephrology providers, six were assigned to clinics with CKD patients including one NP who was the project director. The project director conducted discussions with each provider in small groups, and individually to increase awareness on the significantly low percentage of HBD patients under the facilities' care and the importance of pre-dialysis patient education. The providers were also offered information on the educational materials and handouts. The providers were asked to document education on all veterans in the clinics diagnosed with CKD stages IV and V in the clinic. To evaluate post-intervention knowledge among advanced kidney disease patients, a convenience sample was recruited from all interested and eligible veterans in the NP clinic during the first three weeks. The clinic scheduler and social worker were instructed to provide participants with the project director's contact information if they had any questions when the project director was away or not on the clinic premises. The recruitment process was ongoing throughout the project, which was conducted during weeks 1- 12. Due to COVID-19, there were ongoing restrictions in clinic appointments which required most face-to-face appointments to be converted to televisits. The project director called eligible patients and described the project aims and intervention to them and informed them that educational sessions would take place every two weeks through videocalls or during clinic appointments. If the patients were interested in participating, demographic data including email addresses and phone numbers were obtained. The participants were also encouraged to include family members in educational sessions. For participants who did not have access to email or videocalls, clinic appointments and telephone calls were utilized for education.

During the intervention phase (weeks 5-12), the participants were contacted via phone by the clinic scheduler and reminded the day before of the scheduled appointment. Each participant was at a different stage of educational session during this phase, and modes of teaching sessions



varied from videocalls, telephone calls or face to face appointments. During the initial phase in the NP clinic, the project director provided a 10-15-minute interactive teaching session using a PowerPoint presentation and utilized eKidney clinic website to provide information on kidney disease, causes of kidney disease, diet, management, and the progression of kidney disease. Consecutively, the project director received updates from the other five nephrology providers about pre-dialysis education to eligible patients in their respective clinics. The providers were requested to document the educational intervention in the patient's charts. During the second phase of the education, the project director provided information on management of kidney failure, dialysis modalities, transplantation, conservative management, and lifestyle changes after dialysis. During the third intervention phase, detailed explanation of different dialysis options with videos of the procedure and interviews of patients on each modality were shared with participants and families. They were encouraged to ask questions which enabled the establishment of a patient-provider partnership in shared decision-making. The renal social worker was also available to answer questions regarding dialysis facilities and placement (See Appendix F for Project Timeline).

### **Data Collection**

The project director collected demographic data such as age, gender, race and data on CKD stage, email, and telephone numbers of the participants. After recruitment, I requested interested participants to complete the printed version of the KiKS and document pre-intervention dialysis choice. The surveys were delivered to participants during initial clinic visits or through emails, and survey results were obtained through in-person, telephone and videocalls during week three-four. During week ten to eleven, the participants were asked to complete a post-intervention survey using the KiKS questionnaire and their document their choice of

dialysis modality. The data regarding education and counseling efforts in the provider clinics were collected by the nurse navigator and myself using chart reviews, pre- and post-intervention KiKS scores were collected from my clinic with the help of social worker. Chart reviews were conducted with the help of nurse navigator in collecting monthly dialysis initiation in the facility. In week twelve, the project director discussed the post-intervention KiKS improvement scores with the participants. The project director evaluated the provider adherence in implementing the education program one month, two months and three months post intervention using chart reviews (See Appendix F for Project Timeline).

### **Measurement Tools**

A modified version of the KiKS developed by Molnar and associates was used for the project. The original survey, developed by Wright et al. (2011b), contained 28 items, but a question that evaluates knowledge about blood pressure target was removed, as blood pressure parameters varies from person to person depending on the clinical comorbidities (Armstrong & Joint National Committee, 2014). Therefore, the modified version of KiKS contained 27 items (Molnar et al., 2020) (See Appendix G for KiKS). The KiKS is grouped into three sections to measure general knowledge of kidney disease necessary to manage CKD at home, the symptoms of kidney disease and kidney failure, treatment options for kidney failure. The survey has been determined to be reliable (KuderRichardson-20 coefficient = 0.72) with good construct validity (Wright et al., 2011b). The number of patients selecting home dialysis pre-and post-intervention and the total number of HBD patients in the facility during intervention period were determined using monthly chart reviews. A monthly chart review was also conducted in the nephrology provider clinics to determine the number of eligible patients who was offered and received education. Educational interventions were provided by nephrology providers; information on the

interventions and data collection training were provided to nephrology social worker and nurse navigator to ensure reliability and validity of the data collected.

### **Data Analysis**

Data was analyzed using Minitab software for statistical analysis version 20.1.3.0. Demographic data was analyzed using descriptive statistics and presented in a demographic table (See Table 1 for Demographic data of Participants). To determine if Aim 1 was met, participants mean KiKS scores were analyzed using descriptive statistics and a paired t-test was used to determine if a mean increase in post-intervention score was achieved and if there was a statistically significant improvement from pre-to post-intervention. To determine if Aim 2 was met, we used frequencies to determine the percentage of patients choosing HBD from January-March of 2020 (pre-intervention) and compared that to the percentage choosing HBD at the end of each month of the project (post-intervention). An independent t-test was used to determine if there was a statistically significant difference. In addition, monthly percentages were used to show changes over time in a run chart. To determine if Aim 3 was met, we calculated the percentage of eligible patients who received dialysis modality education at baseline and each month of the project in provider clinics. Changes over time were shown in a time series run chart.

## **RESULTS**

We noticed increasing clinic appointment cancellations by patients during the enrollment phase largely due to COVID-19 restrictions, which led to a reduced number of expected participants from 20 to 15. Among the 15 participants, one of them progressed to kidney failure and had to initiate dialysis before the intervention, and therefore dropped from the project. Another participant had to move out of state and requested to drop from the project, which

resulted in a total of 13 participants for this project. Six nephrology providers including myself participated in this QI initiative by providing dialysis education to the advanced kidney disease patients in their respective clinics. Due to the COVID-19 pandemic, some of the providers were teleworking predominantly and therefore were contacted by email and telephone calls to encourage educating all eligible patients and to confirm chart documentation of their education and counseling efforts. I had regular discussions with the nurse navigator and social worker who assisted with chart review and data collection. The clinic scheduler was helpful in alerting participants about the upcoming appointments and informing the projector director of the appointment preference of the participants (See Appendix I for Implementation of Changes).

### Outcomes

The mean age of the 13 participants enrolled in this project was 72.6 years (SD = 9.9); 92.3% were males and 7.7% were females. The majority of the participants were Caucasians (61.5%). Among the participants, 92.3% were in CKD Stage IV. Refer to Table 1 for the Demographic Data of the participants.

Table 1: Demographic Characteristics of Study Population

| Age, Mean (SD) Range |                  | 72.6 (9.9) | 58-95 |
|----------------------|------------------|------------|-------|
| Gender               |                  |            | %     |
|                      | Female           | 1          | 7.7   |
|                      | Male             | 12         | 92.3  |
| Race                 |                  |            | %     |
|                      | African American | 4          | 30.8  |
|                      | Caucasian        | 8          | 61.5  |
|                      | Hispanic         | 1          | 7.7   |

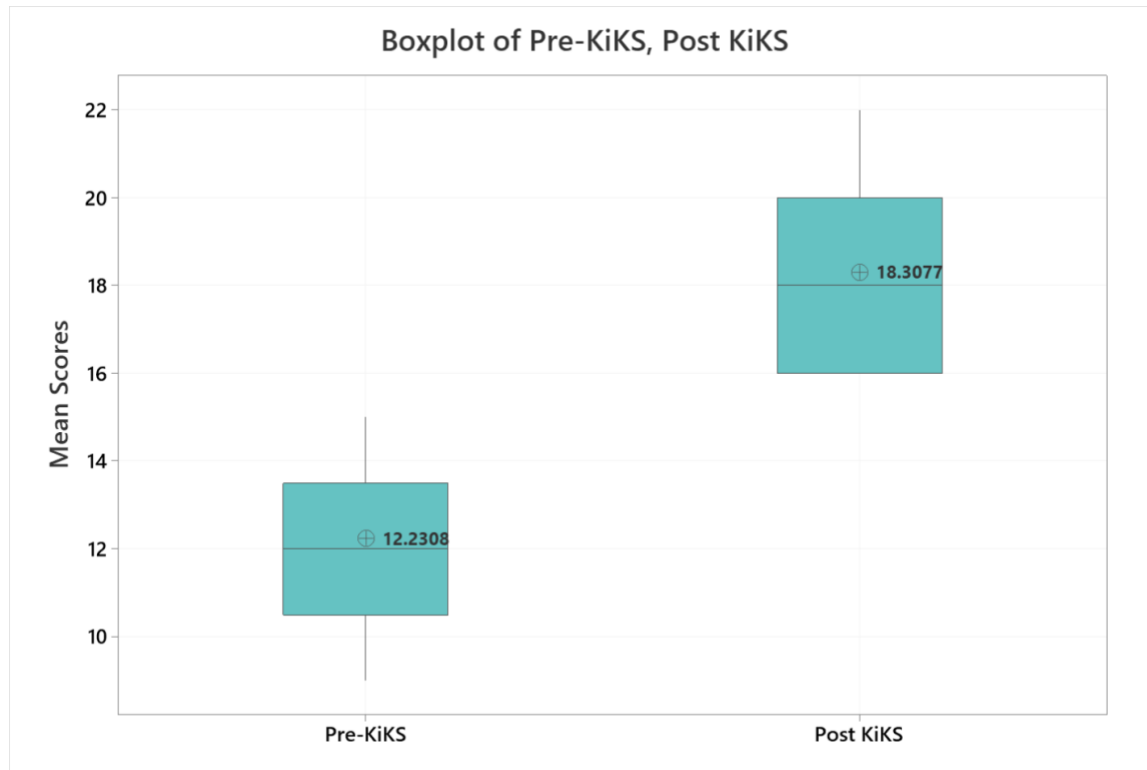
| CKD Stage |    | %    |
|-----------|----|------|
| Stage IV  | 12 | 7.7  |
| Stage V   | 1  | 92.3 |

Aim #1: There was a significant increase in participants' KiKS score post-intervention ( $M = 18.31$ ,  $SD = 2.06$ ) when compared to pre-intervention ( $M = 12.23$ ,  $SD = 1.88$ );  $t(12) = -12.84$ ,  $p = <.001$ ,  $d = 3.08$ ). See Table 2 for Paired  $t$  test for Pre-and Post-KiKS scores. See Figure 2 for Box-Plot representation.

Table 2: Paired  $t$  test for Pre-and Post-KiKS

| Variables | N  | Mean  | $SD$ | $t$    | $p$   | $d$  |
|-----------|----|-------|------|--------|-------|------|
| Pre-KiKS  | 13 | 12.23 | 1.88 |        |       |      |
| Post-KiKS | 13 | 18.31 | 2.06 | -12.84 | <.001 | 3.08 |

Figure 2: Boxplot Representation of KiKS Pre-and Post-intervention Mean Scores



Aim#2: There was a 46% increase in the number of participants selecting home dialysis as their modality choice during the study period (69%), when compared to the pre-intervention sample (23%), including eligible patients January – March 2020. See Figure 3 for Bar Chart representation. The number of patients who selected HBD and In-center dialysis from Jan-March 2020 and Feb-April 2021 in the facility have been represented in a run chart in Figure 4. A two-sample t test showed a statistically significant increase in patients choosing home dialysis after the intervention when compared to the same time in 2020 ( $t(46) = 1.84, p < .05, d = 0.58$ ). See Table 3 for *Two sample t test*.

Figure 3: Bar Chart Representation of Pre-and Post-intervention Modality Selection

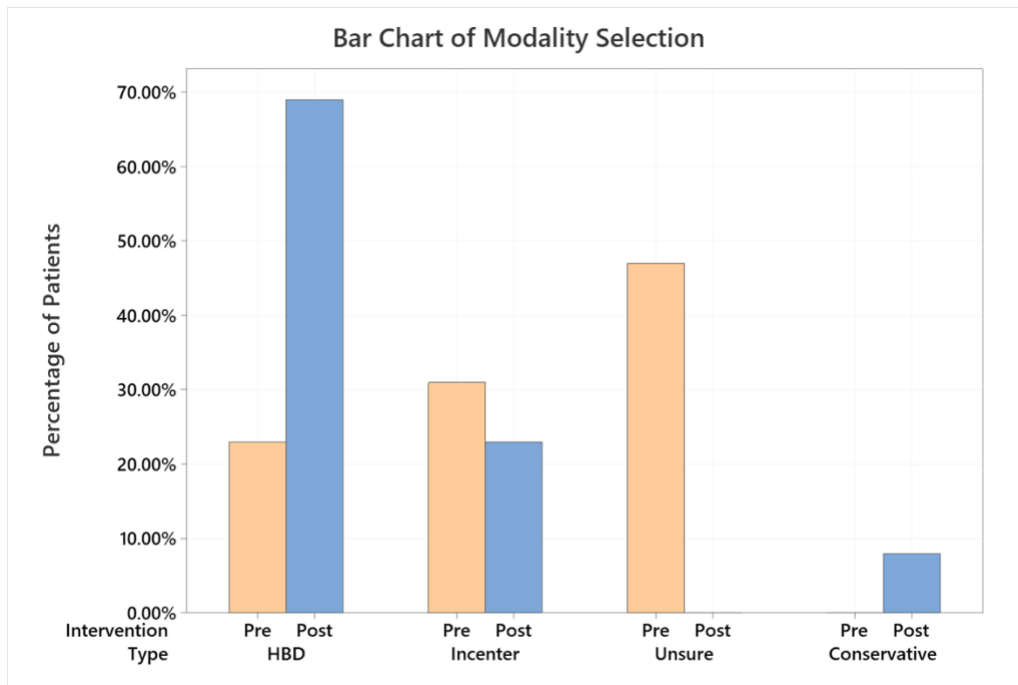


Figure 4: Run Chart of HBD and In-center Dialysis over time in the Facility

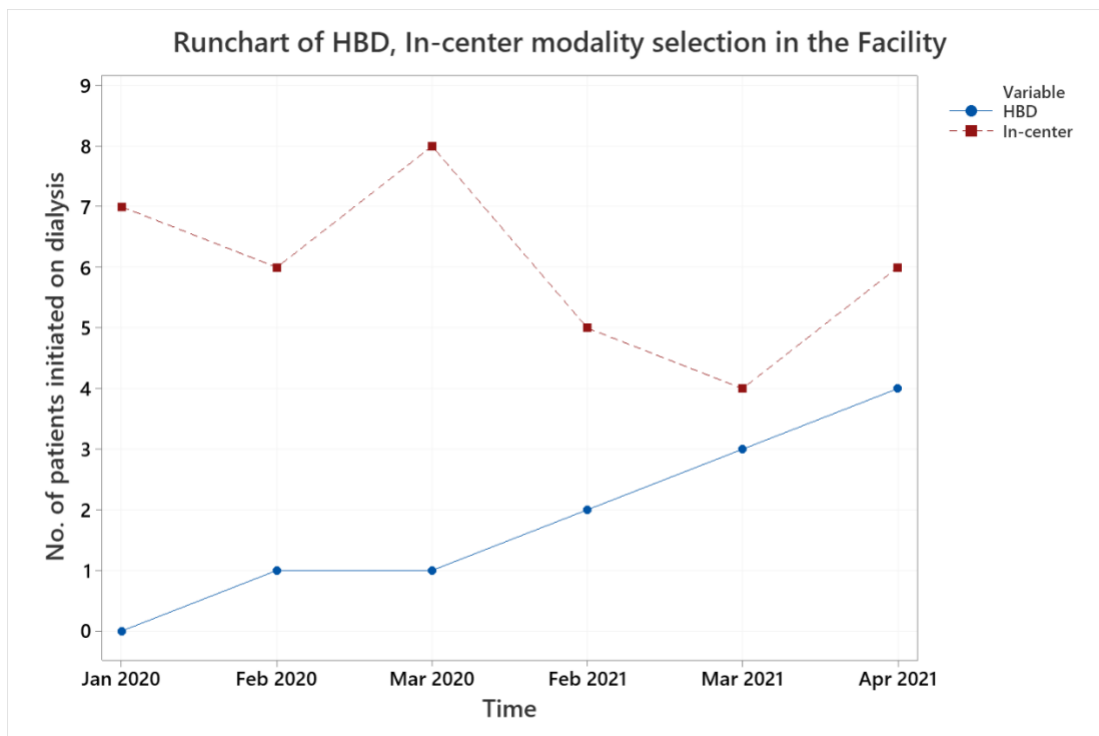


Table 3: Two Sample T Test for Pre-and Post-intervention Modality Selection in the Facility

| <b>Type</b> | <b>N</b> | <b>Mean</b> | <b>SD</b> | <b><i>t</i></b> | <b><i>p</i></b> | <b><i>d</i></b> |
|-------------|----------|-------------|-----------|-----------------|-----------------|-----------------|
| HBD         | 11       | 29.6        | 10.7      | 1.84            | <.05            | 0.58            |
| In-Center   | 36       | 22.3        | 14.2      |                 |                 |                 |
| Total       | 47       |             |           |                 |                 |                 |

Aim#3: There was a steady increase in provider adherence to educate patients on dialysis options with 81% of eligible patients receiving education by the end of April 2021. This represents a 57% increase in post-intervention when compared to pre-intervention (24%) chart reviews from 2020. See Figure 5 for time series plot representing provider adherence. All the providers showed an improvement in patient education over time as seen in the scatterplot in Figure 6 representing Eligible vs Received patient education in provider clinics. We also identified an unexpected positive impact of this project in HBD modality selection in the facility. It was determined that there was a significant increase in HBD selection in the in the facility; 66% by April 2021, compared to 17% in February 2020. See Figure 4.



Figure 5: Time Series Plot of Patient Education by Providers

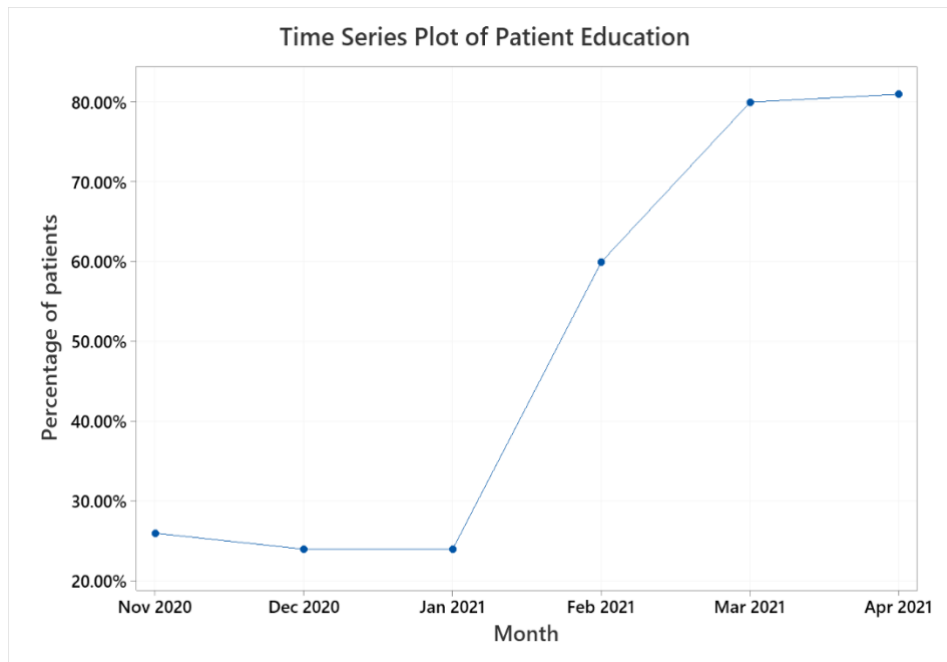
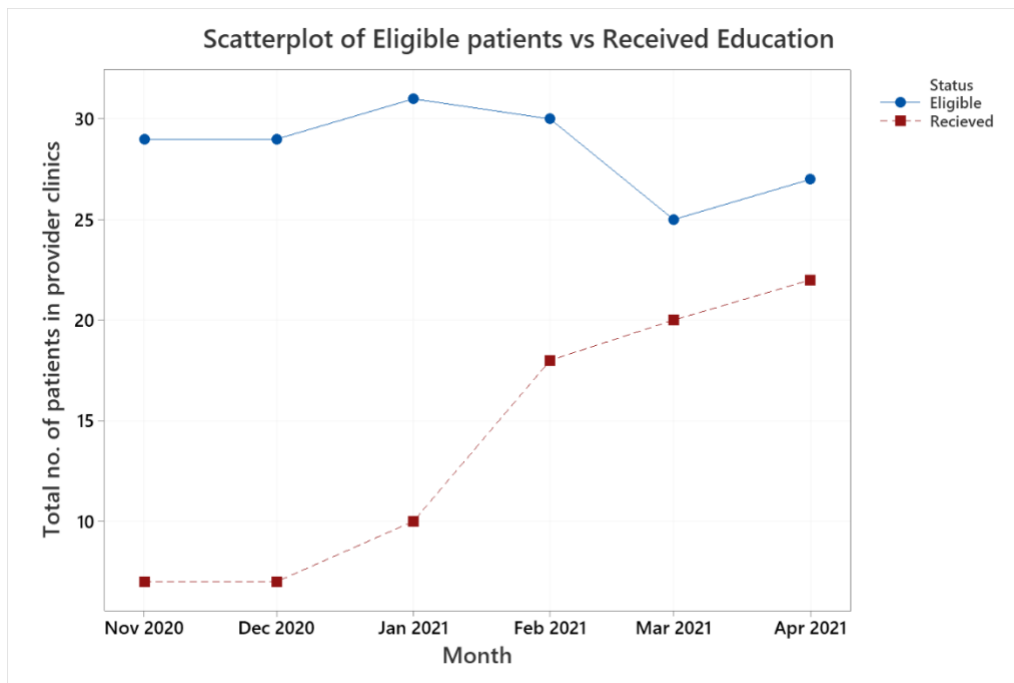


Figure 6: Scatter plot of Provider adherence to Patient Education



## DISCUSSION

In summary, the purpose of this project was to determine if a structured educational program could increase patient awareness of different dialysis modalities, increase patient informed selection of HBD modality and improve provider adherence in educating veterans with advanced kidney disease. There were three aims for this project. First aim was to increase knowledge of kidney disease and different available dialysis modalities among veterans with advanced kidney disease. After the intervention, there was a significant increase in participants' KiKS mean score by more than 6 points, which exceeded the specific goal of 3 points. The second aim was to increase the number of participants selecting HBD as their choice of modality. After the intervention, 69% of participants selected HBD modality as compared to specific goal of 50%. The third aim was to improve provider adherence to patient education. The specific goal was to have 100% of eligible patients receiving dialysis education. After the intervention, there was a steady increase in patient education in provider clinics. It was determined that after the end of the project 81% of eligible patients received education compared to 24% pre-intervention. We also identified a notable increase in HBD selection in the facility as a whole- 66% by April 2021, compared to 17% in February 2020.

The process by which providers educated the advanced kidney disease patients in their clinics also remarkably improved. Frequent communications and discussions with providers by the project director increased providers' willingness to actively support and participate in the project. Our dialysis director was interested in starting a home dialysis training unit in the facility following this project after noticing the positive impact of the project. Findings from this QI project will be included in the application packet for the home-based dialysis training unit.

Therefore, it is evident that this project remarkably impacted the facility in terms of improved quality of care, patient outcomes and clinical outcomes.

The results of this QI project were consistent with the findings of others. A randomized controlled trial (RCT) conducted by Massey et al. (2014) investigated the effectiveness of an educational program to increase knowledge and communication among patients who were to undergo dialysis treatment. Researchers found a significant increase in average knowledge among attendees ( $n=222$ ) from 11.12 ( $SD = 4.89$ ) to 17.30 ( $SD = 3.03$ ),  $t(221) = 21.01$ ,  $p < 0.001$  ( $d = 1.41$ ). Similarly, in this project a significant increase in average knowledge among participants from 12.23 ( $SD = 1.88$ ) to 18.31 ( $SD = 2.06$ ),  $t(12) = 12.84$ ,  $p = <.001$  ( $d = 3.08$ ) were identified. A systematic review that compiled evidence on effective pre-dialysis education programs as related to modality choice and outcomes from January 1, 1995, to December 31, 2013, reported 50-75% of participants in the review studies chose HBD after receiving pre-dialysis education. (Rutherford et al., 2015). The result from this project is comparable to the Rutherford et al. (2015) result, as 69% of participants chose HBD after receiving education. A QI project conducted by Uhland (2018) identified significant improvement in post education KiKS score ( $p = 0.001$ ) in 14 advanced kidney disease patients in their renal clinics. The result of this study is in parallel to my QI study result. Lederer et al. (2015) conducted a qualitative study to evaluate the effectiveness of communication between veterans diagnosed with CKD and their healthcare providers. Among the participants, 91% ( $n=32$ ) reported limited information regarding their kidney disease and reported needing more information. The patients also reported a lack of information prevented them from making informed decisions (Lederer et al., 2015). The researchers emphasized that given the complicated course of this disease process, a lack of the patient's understanding of the disease may result in worsening kidney function, non-adherence to

medication and dietary recommendations, and inadequate preparation for dialysis treatment (Lederer et al., 2015). The study determined that advanced kidney disease patients require sufficient information to effectively manage the disease process, which can be delivered by effective provider communication during the education class (Lederer et al., 2015). This study also identified the need for establishing interventions to improve patient education and evaluate the effectiveness of that education. Similarly, this QI project also focused on improving provider adherence to patient education, which resulted in 81% of advanced kidney disease patients receiving education in the provider clinics by the end of the project.

### **Limitations**

One of the major limitations of this study was that more than 92% of the sample were male. This is because most of the veterans in U.S are males (15.78 million male veterans vs 1.64 million female veterans) (Statista, 2021). Another limitation was the small sample size (13 participants), mostly due to clinic cancellations from COVID-19 restrictions. Most of the patients cancelled appointments due to fear of coming in for clinic visits. Web-based education was used to mitigate this challenge. All the eligible patients in the provider clinics were not able to be educated as most of the clinic visits were converted to teleclinics due to COVID restrictions. Some of the patients expressed educational interest only during face-to-face appointments. This limitation will be resolved when clinics are opened back to in-person appointments. This improvement will be monitored in the next PDSA cycles. Another limitation of this study was that the dialysis patient database was not specifically monitored for patients from the provider clinics. It includes patients from emergent dialysis start, inpatients who are being started on dialysis, and patients from provider clinics. The data obtained pre-intervention was from this database.

## **Interpretation**

The intervention of this QI project was guided by the Three-Talk Model for Shared Decision-Making (Elwyn et al., 2017). This model enabled the dialysis decision-making process effortless between providers, patients, and families. The project director used team talk, option talk, and decision talk to depict a process of collaboration and deliberation. Team talk was used to provide support to patients when they are made aware of choices in the intervention phase. This enabled the participants and their families to elicit their goals as a means of guiding decision-making processes. Option talk was used to compare modality choices and alternatives using risk communication principles. Decision talk enabled participants to arrive at decisions that reflect the informed preferences guided by the experience and expertise of the providers. For instance, 46% of participants were unsure about their modality selection pre-intervention, while none of them were unsure post intervention (See Figure 3 for Bar Chart representation of pre-and post-intervention modality selection). Due to the unusual challenges faced due to COVID restrictions in clinic appointment during the intervention phase, implementation of the educational intervention to advanced kidney disease patients for informed dialysis decision making can produce more favorable results in the next PDSA cycle to come closer to proposed goals.

For the outcomes of this project to be sustainable, the educational intervention should be a standard practice across all the nephrology clinics in the facility. The results from this project were shared among all the providers in the nephrology department as well as the leadership staff to bring awareness of the benefits of intervention. The improvement in home dialysis in the facility will be monitored continuously and updates will be provided to the department staff. The teaching will be standardized practice in all advanced kidney disease patients with education

materials in digital copy shared with all the providers. Providers will also be monitored in the next PDSA cycles for adherence in providing education. I developed a video platform based narrated PowerPoint video of the CKD education program and shared it with all the providers for patient education. The education program will be studied at each phase (every 3 months) and necessary changes will be made during the PDSA cycle. Handouts and flyers are placed in the clinic waiting area regarding various dialysis modalities to bring awareness to patients and families. Patient education will be included in the advanced kidney disease patient documentation template with the help of the Information Technology (IT) department, which will alert providers on education during each clinic visit.

The results were shared with the Chief of the Nephrology Department, nurse executives and leadership and all the nephrology department providers. These leaders were able to recognize the potential improvement in revenue of the clinic because of an increase in HBD enrollment. Because there is an increase in number of veterans choosing PD, there is a cost savings for the VA Health Benefits system that covers dialysis treatments for veterans. According to United States Renal Data System Annual Data Report (2019), PD remained less costly on a per-patient basis in 2017 (\$78,159) than hemodialysis (\$91,795). Therefore, an estimated savings of \$13,000 per patient per year can be expected in choosing PD over hemodialysis (USRDS, 2019).

## **Conclusion**

Dialysis modality decisions are highly personal and strongly influenced by patient and family values and the context of their life. There is a clear need for planned and timely discussions about modalities in which home-based dialysis is presented as a reasonable option. Professional health care provider and staff support should be given to improve patient and family

awareness of different dialysis modalities and their connection to the veterans' lifestyle.

Therefore, a structured educational program should be a standard practice in nephrology clinics for veterans and non-veterans with advanced kidney disease. Providers should refer patients and families to educational modules that are available online and provide opportunities for shared decision-making. Moreover, every nephrology provider should aim to bridge the communication gap between the provider and the patient by using education to promote a patient-centered approach in a complex shared decision-making process. Consequently, research should focus on the association between education and long-term health outcomes on patients with advanced kidney disease. Also, it is possible that many renal clinics are not able to provide education classes secondary to the lack of qualified staff and the challenges associated with allocating clinic time and clinic space to implement the education classes. However, if more studies were conducted to demonstrate the improvements in knowledge, clinical outcomes and informed decision-making associated with educating the patients with advanced kidney disease, perhaps more practices, both primary care and nephrology, would appreciate the value of including education classes within the plan-of-care for persons with CKD. Providers and healthcare professionals should strive to achieve the AAKI goal of 80% of new ESRD patients to be on home dialysis by 2025. This can be achieved by increasing awareness of kidney disease and treatment options among patients. Future QI projects and research on increasing informed dialysis decision-making and providing education to advanced kidney disease patients can have a great impact in the improvement of home-based dialysis while enabling shared and informed decision-making.

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## APPENDIX A: Risk Assessment Tool

| <b>Risk</b>                     | <b>Impact</b>                                                   | <b>Countermeasure</b>                                                                                                    | <b>Facilitators</b>                                                                               | <b>Barriers</b>                                                                      |
|---------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Smaller number of participants. | Reduced strength of the project.                                | Identify CKD IV and V patients earlier; schedule patients in the intervention period.                                    | Clinic scheduler to facilitate scheduling process.                                                | Lack of participation.                                                               |
| Pandemics like COVID.           | Lack of delivery of the intervention.                           | Prepare for electronic delivery of intervention.                                                                         | Undertake electronic learning measures.<br>Identify online accessibility for the participants.    | Lack of online accessibility.                                                        |
| Difficulty for provider buy in. | Lack of education to all eligible patients in provider clinics. | Current facility data will be presented to identify gap in practice. Team based approach will be used for communication. | Nephrology department chief support will be discussed, continuous discussions with all providers. | Lack of provider availability due to COVID restrictions and increase in teleworking. |

## APPENDIX B: Not Human Subjects Determination

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------|----------------|-------------------------|----------------------|---------------|---------------|-----------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------|
| <b>From:</b>           | irb@tamucc.edu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>To:</b>             | julie.fomenko@tamucc.edu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>CC:</b>             | julie.fomenko@tamucc.edu; irb@tamucc.edu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>Subject:</b>        | Not Human Subjects Determination: Not Research                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>Message:</b>        | <p>Dear Julie Fomenko,</p> <p>Activities meeting the DHHS definition of research or the FDA definition of clinical investigation and involves human subjects are subject to IRB review and approval.</p> <p>On 12-01-2020, the Office of Research Compliance reviewed the project below and determined that the proposed activity does not meet the FDA definition of a clinical investigation or DHHS definition of research:</p> <table><tr><td><b>Type of Review:</b></td><td>Not Human Subjects Determination</td></tr><tr><td><b>IRB ID:</b></td><td>TAMU-CC-IRB-2020-10-092</td></tr><tr><td><b>Project Lead:</b></td><td>Julie Fomenko</td></tr><tr><td><b>Title:</b></td><td>Quality Initiative to Inform Dialysis Modality Selection for Veterans with Advanced Kidney Disease.</td></tr><tr><td><b>Rationale:</b></td><td>The project will not develop or contribute generalizable knowledge</td></tr></table> <p>Therefore, this project does not require IRB review. You may proceed with this project.</p> <p>Limits to this determination:</p> <ol style="list-style-type: none"><li>1. This determination applies only to the activities described in the documents reviewed. Any planned changes require submission to the IRB to ensure that the research continues to meet criteria for a non-human subject research determination.</li><li>2. This project may NOT be referenced as "IRB approved".</li></ol> <p>The following statement can be included in the manuscript: "This Project was reviewed and determined to not meet the criteria for human subjects research by the Texas A&amp;M University-Corpus Christi Institutional Review Board."</p> <p>Please do not hesitate to contact the Office of Research Compliance with any questions.</p> <p>Respectfully,</p> <p>Germaine Hughes-Waters</p> <p>Office of Research Compliance</p> | <b>Type of Review:</b> | Not Human Subjects Determination | <b>IRB ID:</b> | TAMU-CC-IRB-2020-10-092 | <b>Project Lead:</b> | Julie Fomenko | <b>Title:</b> | Quality Initiative to Inform Dialysis Modality Selection for Veterans with Advanced Kidney Disease. | <b>Rationale:</b> | The project will not develop or contribute generalizable knowledge |
| <b>Type of Review:</b> | Not Human Subjects Determination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>IRB ID:</b>         | TAMU-CC-IRB-2020-10-092                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>Project Lead:</b>   | Julie Fomenko                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>Title:</b>          | Quality Initiative to Inform Dialysis Modality Selection for Veterans with Advanced Kidney Disease.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |
| <b>Rationale:</b>      | The project will not develop or contribute generalizable knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                                  |                |                         |                      |               |               |                                                                                                     |                   |                                                                    |

## APPENDIX C: MEDVAMC QI Assessment Board Letter

### MEDVAMC CHECKLIST: QUALITY ASSURANCE OR IMPROVEMENT (QA/QI) OR RESEARCH?

FOR OFFICIAL USE ONLY BELOW THIS LINE

#### Determination:

☒ **Not Research.** It has been determined that based on the responses above and the proposed project description approval by the R&D Committee or other review committee is not needed. The project is considered to be a non-research VHA operations activity. If the results of this project are presented or published they cannot be presented as research, nor does it have IRB and R&D approval.

☐ **Research Project.** As designed this project requires review by the BCM IRB or other appropriate review committee *prior* to initiation.

☐ Additional information is needed to make a determination. See comments below.

#### Reviewer Comments:

This project entitled, "Expanding Home-based Dialysis" has been deemed to be not research. PI is Betsy Mathews, NP.

#### MEDVAMC ACOS/R&D or Designee Signature:

  
Denise B. Naylor, Ph.D.  
Director of Quality Assurance, Research  
MEDVAMC

Date: 11/12/20

#### Reference:

VHA Handbook 1058.05: VHA Operations Activities That May Constitute Research  
Program Guide 1200.21

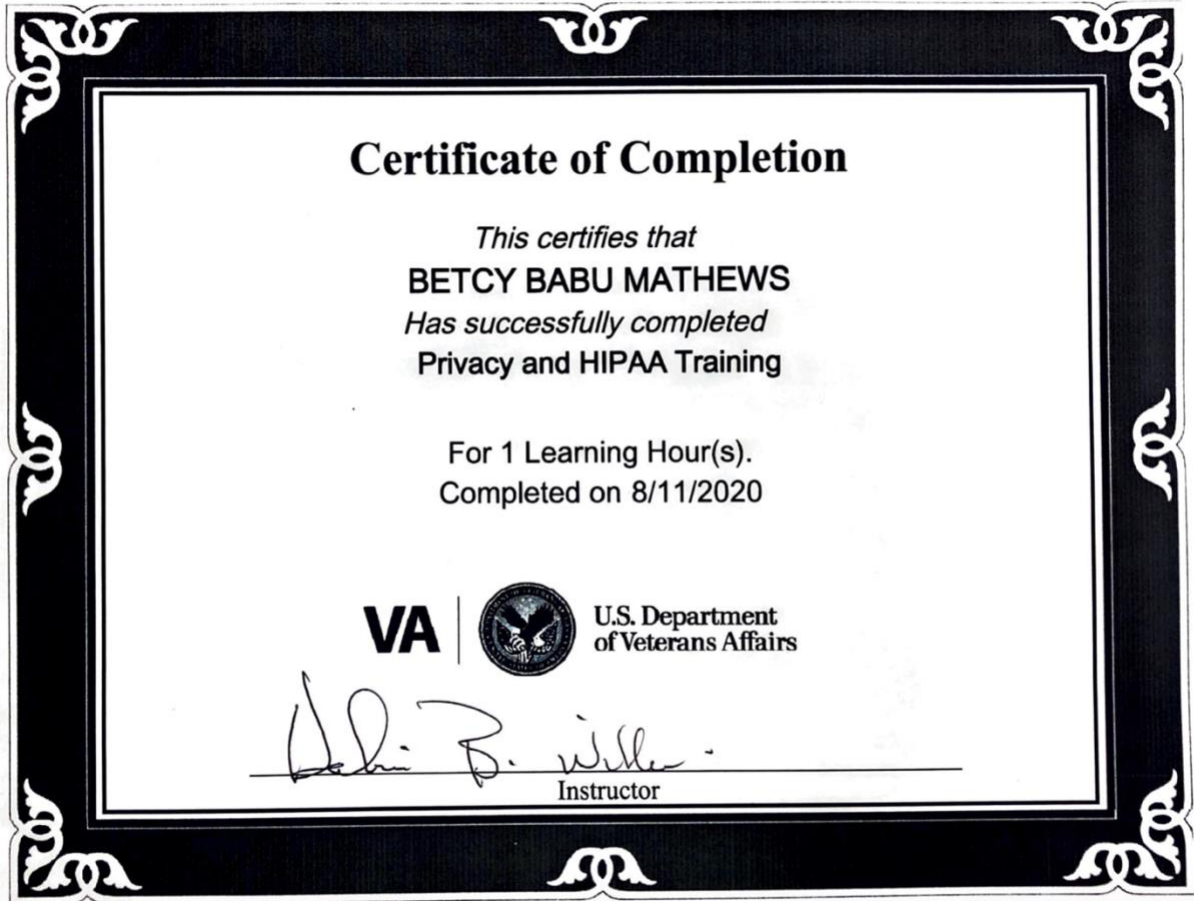
<sup>1</sup>Examples of operations activities include activities designed for internal VA purposes, including routine data collection and analysis for operational monitoring, evaluation and program improvement purposes, VHA system redesign activities, patient satisfaction surveys, case management and care coordination, policy and guidance development, benchmarking activities, Joint Commission visits and related activities, medical use evaluations, business planning and development such as cost-management analyses, underwriting, and similar activities.

<sup>2</sup>Any change made before, during, or after implementation that results in an intent to expand the knowledge base of a scientific discipline or scholarly field of study, or otherwise contribute to generalizable knowledge, constitutes research and must be submitted to an IRB or other pertinent review committee.

<sup>3</sup>Please note it is the responsibility of this individual and/or each VA author and coauthor (in cases of publication) to retain a copy of this form signed by the ACOS/R&D for a minimum of 5 years after publication and in accordance with any applicable records retention schedules. A copy will also be retained by Research Service.

<sup>4</sup>Potential risks (including physical, psychological, social, financial, privacy, and confidentiality, and other foreseeable risks) associated with non-research operations should be evaluated and appropriate protections established to mitigate them.

APPENDIX D: HIPAA Confidentiality Agreement



## APPENDIX E: Facility Letter of Support



### DEPARTMENT OF VETERANS AFFAIRS

#### Michael E. DeBakey Medical Center

2002 Holcombe Blvd.

Houston, Texas 77030

[Date] 12/22/2020

Dr. Sara Baldwin  
Associate Dean for Academic Programs  
College of Nursing and Health Sciences  
Texas A&M University – Corpus Christi  
6300 Ocean Drive  
Corpus Christi, TX 78412.

Dear Dr. Baldwin,

The purpose of this letter is to provide **Betsy B Mathews**, a Doctor of Nursing Practice student at Texas A&M University College of Nursing and Health Sciences, support in conducting a quality improvement project at **Michael E DeBakey VA Medical Center, Houston**. The project, *Expanding Home-based dialysis*, entails enabling veterans with advanced kidney disease to allow informed decision making regarding their dialysis modality.

The purpose of this project is to increase awareness on different dialysis modalities available to the advanced chronic kidney disease veterans if they must choose dialysis with the progression of kidney disease. MEDVAMC was selected for this project because the prevalence of chronic kidney disease (CKD) in the veteran population is estimated to be 34% higher than in the general population, due to demographic differences and the existence of significant co-morbidities associated - diabetes mellitus and hypertension. Betsy B Mathews is employed at this institution and have an interest in improving care at this facility.

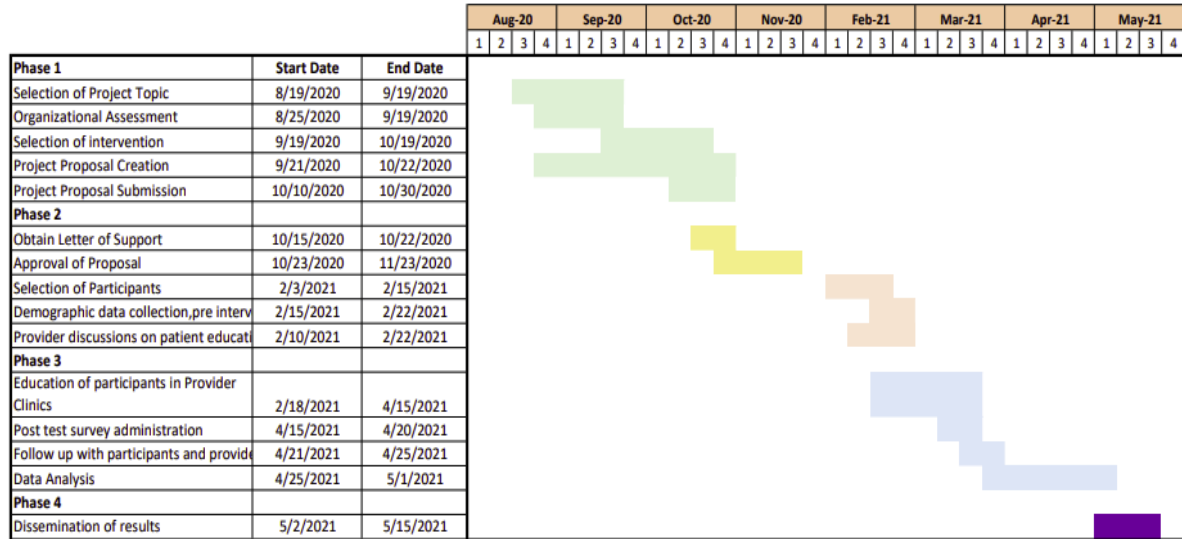
I, **Sherri-Lynne Almeida**, Ambulatory Care Nurse Executive – MCL & DTCL at Michael E DeBakey VA Medical Center, do hereby fully support Betsy B Mathews in the conduct of this quality improvement project, *Expanding Home-based dialysis*, at Michael E DeBakey VA Medical Center, Houston.

Sincerely,

Sherri-Lynne Almeida, DrPH, MSN, M.Ed., RN, CEN. FAEN

Ambulatory Care Nurse Executive – MCL & DTCL

## APPENDIX F: Project Timeline



## APPENDIX G: KiKS Survey

### KiKS Survey

1. **Are there certain medications your doctor can prescribe to help keep your kidney(s) as healthy as possible?** ☐ Yes (correct) ☐ No
2. **Why is too much protein in the urine not good for the kidney?**
  - ☐ It can scar the kidney
  - ☐ It is a sign of kidney damage
  - ☐ It is a sign of kidney damage AND can scar the kidney (correct)
  - ☐ It can cause an infection in the urine
  - ☐ All of the above
3. **Select the ONE MEDICATION from the list below that a person with chronic kidney disease should AVOID:**
  - ☐ Lisinopril
  - ☐ Tylenol
  - ☐ Motrin / Ibuprofen (correct)
  - ☐ Vitamin E
  - ☐ Iron Pills
4. **If the kidney(s) fail, treatment might include (FOR THIS QUESTION you can PICK up to TWO ANSWERS):**
  - ☐ Lung biopsy
  - ☐ Hemodialysis (correct)
  - ☐ Bronchoscopy
  - ☐ Colonoscopy
  - ☐ Kidney transplant (correct)

*Note: Both hemodialysis AND kidney transplant responses needed to be marked for the survey item to be scored as correct.*
5. **What does "GFR" stand for?**
  - ☐ Glomerular Filtration Rate - tells us level of kidney function (correct)
  - ☐ Good Flow Renal - tells us about flow of urine from kidney
  - ☐ Gain For Real - tells us if your kidney function is improving
  - ☐ Glucose Function Rate - tells us about your blood sugar level
6. **Are there stages of CHRONIC kidney disease?**
  - ☐ Yes (correct) ☐ No
7. **Does CHRONIC kidney disease increase a person's chances for a heart attack?**
  - ☐ Yes (correct) ☐ No
8. **Does CHRONIC kidney disease increase a person's chance for death from any cause?**

☐ Yes (correct)      ☐ No

**This section is about WHAT THE KIDNEY DOES. Please select one answer to each question below.**

|                                                                      | <b>Yes</b>                         | <b>No</b>                          |
|----------------------------------------------------------------------|------------------------------------|------------------------------------|
| 9. Does the kidney make urine?                                       | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 10. Does the kidney clean blood?                                     | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 11. Does the kidney help keep bones healthy?                         | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 12. Does the kidney keep a person from losing hair?                  | <input type="checkbox"/>           | <input type="checkbox"/> (correct) |
| 13. Does the kidney help keep red blood cell counts normal?          | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 14. Does the kidney help keep blood pressure normal?                 | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 15. Does the kidney help keep blood sugar normal?                    | <input type="checkbox"/>           | <input type="checkbox"/> (correct) |
| 16. Does the kidney help keep potassium levels in the blood normal?  | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 17. Does the kidney help keep phosphorus levels in the blood normal? | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |

**This section is about SYMPTOMS. Please select from the list, all the symptoms a person might have if they have chronic kidney disease or kidney failure.**

|                                           | <b>Yes</b>                         | <b>No</b>                          |
|-------------------------------------------|------------------------------------|------------------------------------|
| 18. Increased fatigue?                    | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 19. Shortness of breath?                  | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 20. Metal taste / bad taste in the mouth? | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 21. Unusual itching?                      | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 22. Nausea and / or vomiting?             | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 23. Hair loss?                            | <input type="checkbox"/>           | <input type="checkbox"/> (correct) |
| 24. Increased trouble sleeping?           | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 25. Weight loss?                          | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 26. Confusion?                            | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |
| 27. No symptoms at all?                   | <input type="checkbox"/> (correct) | <input type="checkbox"/>           |