

**IMPROVING COORDINATION OF CARE FOR HEART TRANSPLANT RECIPIENTS
THROUGH A SYSTEMATIC METHOD OF EDUCATION AND COMMUNICATION
BETWEEN THE TRANSPLANT CENTER AND PRIMARY CARE PROVIDERS**

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Abstract

The nature of our fragmented healthcare system carries great threats to individuals with complex conditions in particular for heart transplant recipients. Care delivery for this vulnerable population requires a concerted collaboration between the transplant specialists and primary care providers (PCPs). Substandard coordination of care can contribute to both underuse and duplicity of essential services, patients' dissatisfaction, and adverse health outcomes. PCPs frequently report their struggles to obtain pertinent clinical information and guidance from transplant centers to manage the care of solid organ transplant recipients. Furthermore, in healthcare, providers' level of education and training vary, and curriculums most often do not provide a transplant component. The Iowa model will serve as a guide to translate this DNP project into practice and bridge the existing gap in the co-management of heart transplant patients. A quantitative, non-experimental, correlational study using a pre-assessment Likert scale survey will be administered to assess PCPs' perceptions of the transplant center, knowledge of transplant most common practices, level of confidence and willingness to co-manage the care of heart transplant recipients. An intervention consisting of a video recording educational presentation explaining a coordination of care manual will be given to each participant. A post-assessment Likert scale will be used to re-evaluate providers' transplant knowledge, confidence level and willingness to co-manage the care of heart transplant recipients. The purpose of this study is to identify factors that can enhance effective communication and care coordination among PCPs and the transplant center in co-managing heart transplant recipients' care.

Key words care coordination, heart transplant, effective communication, primary care provider

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IMPROVING COORDINATION OF CARE FOR HEART TRANSPLANT RECIPIENTS THROUGH A SYSTEMATIC METHOD OF EDUCATION AND COMMUNICATION BETWEEN THE TRANSPLANT CENTER AND PRIMARY CARE PROVIDERS

Chapter 1

Introduction

The nature of our fractured health care system poses a great threat to patients with complex or chronic conditions, in particular heart transplant recipients. Care delivery for these individuals requires coordination among a multidisciplinary team and the primary care provider (PCP). The Agency for Health Care Research and Quality (AHCRO) defines care coordination as “the deliberate organization of patient care activities between two or more participants (including the patient) involved in a patient’s care to facilitate the appropriate delivery of health care services” (Karam et al., 2021). Some of the benefits of well-coordinated care includes an increase in clinical efficiency with less medication errors, as well as minimizing repetitive tests, treatments, and preventing hospital readmissions (Khera et al., 2017). In contrast, substandard care coordination across health organizations can lead to under provision or duplication of services, comorbidity management, and medications discrepancies (Thrall et al., 2017).

Background

Heart transplantation is the treatment of choice for end stage heart failure disease. The donor heart is arrested at the time of organ procurement. Once the donor heart is transplanted into the recipient, it resumes its contractility function (Stehlik et al., 2018). Immediately after the surgical procedure is completed, allograft rejection becomes the main focus. Surveillance heart biopsies are performed routinely to monitor for the incidence of acute heart rejection (Sern Lim et al., 2019). During this procedure, tissue is obtained from the transplanted heart and sent to the pathologist for evaluation of signs of rejection. Rejection is graded based on a scale set by the International Society of Heart and

Lung Transplantation (ISHLT). To address inconsistencies in pathology interpretation among transplant centers, this scale was developed in 1990 and later updated in 2004 (Peled et al., 2019).

Immunosuppression medications are the cornerstone therapy for the prevention of graft rejection, drastically improving patients' survival, yet placing them at risks for post-transplant complications such as hypertension, diabetes, osteoporosis, dyslipidemia, infections, and malignancies. The increased risk of cancer in heart transplant recipients is considered to be related to the degree of immunosuppression these patients receive (Kim et al., 2018). Treating cardiac transplant recipients and their comorbidities, requires a concerted approach from the multidisciplinary team, primary care provider (PCP), and other subspecialties. As the heart transplant patient transitions back into the community, extensive support from care givers and the PCP is essential to maintain optimal graft function and patient survival.

International registries have reported a 1-year and 10-year heart transplant survival rate surpassing 85 % and 50 % respectively (Lopez-Sainz et al., 2017). Long term survival for heart recipients is accomplished by ensuring a harmonious balance between the right dose of immunosuppressive medications to avoid rejection and minimize potential complications. The number of post-heart transplant follow up visits are frequent during the first year, they decrease over time and can always be modified as clinically indicated. The immediate post-transplant phase is the most critical; therefore, efficient coordination of care between the transplant center and the PCP is paramount to support successful outcomes.

Transplant recipients often report frustration as they have to assume the responsibility for coordinating care between their PCP and the transplant team. At times, some have described a sense of unease from their community providers when they lack an understanding of the transplant diagnosis and the recipients' needs. On the other hand, the PCP often reports a struggle to obtain pertinent information including medical records, test results, and current list of medications to allow for safe and

effective health maintenance and preventive care. It has been noted that a large portion of transplant centers do not provide protocols or guidance for the management of transplant patients with chronic conditions (Famure et al., 2019).

Unlike previous accounts, most transplant specialists view community providers as capable of addressing transplant patients' comorbidities including hypertension, diabetes, dyslipidemia, and bone disease. End-stage heart failure disease is replaced by chronic conditions and with the growing number of solid organ transplant (SOT) recipients, community providers are likely to encounter these patients at some point in their practice. The PCP can assist in coordinating care for SOT patients by becoming familiar with immunosuppression medications, preventing drug interactions, monitoring for signs of rejection and emphasize the importance of immunosuppression adherence (Kantz et al., 2020). Also, as clinicians become familiar with certain populations, they may feel more confident contributing and comanaging their care. Mani et al. (2020) suggested that specific barriers identified by the PCP can be addressed by clinical guidelines and education thereby enhancing patient coordination of care. In health care, there are providers with multiple levels of education and training. Higher learning institutions curriculum content on transplant is not standardized and continued education opportunities in specialized areas such as transplant may not be readily available or appealing to non-transplant professionals. Even when able to participate in transplant-specific education sessions, the PCP may still need guidance to bridge the gap in personal level of comfort to participate in the care of SOT recipients.

Problem Statement

The ineffective coordination of care between primary care and transplant providers can lead to under provision or duplicity of essential services contributing to heart transplant recipients' dissatisfaction and undesired health outcomes. Adopting a systematic method of education and

communication, can foster coordination of care by promoting PCP's transplant knowledge, confidence level, and willingness to co-manage the care of heart transplant recipients.

Chapter 2

Review of the Literature

Data bases searched for the literature review included Google Scholar, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and the Cochrane Library. Keywords and phrases used in the search comprised of coordination of care, heart transplantation, primary care providers transplant knowledge, education, level of comfort, and transplant comorbidities. By setting limits to English language and publications dates from 2017-2021, the search yielded the following results: Google Scholar produced 195 publications for coordination of care, 128 for heart transplantation, 5,730 for primary care providers transplant knowledge, education, comfort level and 22,200 publications resulted for transplant comorbidities. CINAHL data base led to 260,824 publications for coordination of care, 108 for heart transplantation, 1,097 were found for primary care providers transplant knowledge, education, comfort level and 65,290 publications for transplant comorbidities. The Cochrane Library provided 46 reviews for coordination of care, 80 for heart transplantation, 0 reviews found for primary care providers transplant knowledge, education, comfort level and 8 reviews were produced for transplant comorbidities. Exclusion criteria contained publications prior to 2017, non-English language and articles not pertinent to the DNP project objectives. A total of 24 pertinent studies were selected. All articles were published in a peer review journals. Study designs included seven retrospective studies, five review studies, four cross sectional studies, four qualitative studies, two quantitative survey studies, one Pilot study and one expert opinion meeting report. Most of the authors in these studies denied biased or conflicts of interest; however, close to half of the studies were funded by grants and one author received compensations from pharmaceutical companies prior and unrelated to the current manuscript.

Heart transplantation is the gold standard therapy for end stage heart failure disease (Stehlik et al., 2018). Immediately after a successful transplant, graft rejection becomes the main focus and endomyocardial biopsies are performed as a method of rejection surveillance (Stern Lim et al., 2019).

Some of the factors prompting allograft rejection include donor and recipient antibody disparities and compliance with immunosuppressant regimen. Immunosuppression regimens currently yield low rejection rates and with the implementation of antibody induction therapy, acute rejection has decreased during the first year of transplantation (Phanish et al., 2020). Immunosuppressive medications are the basis for the prevention and treatment of allograft rejection whereas predisposing patients to comorbidities. Solid organ transplant (SOT) recipients experience up to fourfold risk for malignancies in comparison to the rest of the population (Krisl et al., 2017). According to Stevenson et al (2019), SOT patients have close to 100-fold increased risk of developing skin cancer. Likewise, hypertension and diabetes have been recognized as the most common comorbidities in kidney transplant recipients (Adeeb et al., 2021). Di Stephano et al. (2018) alluded to the fact that the prevalence of hypertension increases from 15% prior to liver transplant to 53% post transplantation. Caffarelli et al. (2020) reported the prevalence of osteoporosis and osteopenia in lung and heart patients to be present in up to 52% and 42.8 % individually in the pre-transplant period. Additionally, their findings demonstrated an increase in vertebral fractures for both groups of patients in the immediate post- transplant period and trending upward thereafter in the heart transplant group.

Due to the growing number of transplant recipients and the unique challenges they face, co-managing SOT recipients' comorbidities requires a strong collaboration between the PCP and the transplant specialist. The PCP frequently shares grievances when attempting to obtain pertinent clinical information from the transplant centers. Famure et al. (2019) found in recent studies conducted in the United States that numerous transplant centers do not provide protocols or guidance for the management of transplant recipients and their comorbidities. Morken et al. (2019) explained that although survivorship care guidelines exist for hematopoietic stem cell transplantation, non-transplant providers did not feel confident in treating this population. Similarly, Denzen et al. (2019) reported that

transplant center providers did not perceive community healthcare providers as confident when rendering care for hematopoietic cell transplant survivors.

Contrary to this belief, most transplant specialists presume that any PCP can be proficient at addressing transplant patients' comorbidities. Kantz et al. (2020) urged community health care providers to coordinate the care of pediatric SOT patients by supervising immunosuppressant medications adverse reactions, monitoring for signs of infections, screening for depression, and medication non-adherence, thereby contributing to the long-term care of this population. Mani et al. (2020) further suggested that barriers identified by the PCP when rendering patients' care can be addressed by education and clinical guidelines, thus enhancing patient coordination of care. Fulbright et al. (2020) identified collaboration, communication, and education as the underpinnings for achieving success in caring for childhood cancer survivors. In exploring barriers to facilitate the care of heart failure (HF) patients, Hsieh et al. (2020) described how general practitioners (GP) reported not feeling up to date with the latest HF guidelines and they emphasized the value of building on their HF management knowledge and assessment skills. Of similar importance, GP expressed lack of confidence about their role in initiating or titrating HF medications due to the low number of HF patients encounters in their practices. They also identified inconsistent hospital discharge summaries, follow up management plans, and inaccurate medications as factors posing challenges in the management HF patients.

Greer et al. (2019) described how the PCP community noted delays and inadequate information exchange, limited communication with nephrologists, and unclear delineation of roles as barriers to co-manage the care of chronic kidney disease (CKD) with nephrologists. Bartolomeo et al. (2020) cited that suboptimal communication among transplant specialists and nephrologists was the main barrier patients identified when completing transplant evaluations. In addition, breakdown in communication procedures among the PCP and transplant providers can have negative implications for heart transplant recipients in particular medication non-adherence. Medication non-adherence has been linked to graft

rejection, hospitalizations, and death. Medication non-adherence in the heart and lung population varies from 1% to 43% within the first the first three months of transplant (Brocks et al., 2017). Likewise, navigating through multiple various healthcare systems can further contribute to medication discrepancies and decrease in medication adherence. Thrall et al. (2017) reported in their study a 93% of medication discrepancies among SOT recipients receiving dual care between the Veteran Affairs (VA) and the transplant center and 52% of the cases it involved an immunosuppressant. Such findings could possibly implicate fragmented care to allograft rejection or other adverse outcomes. “Dual care poses a risk for fragmentation and/or duplication in care, as well as serious adverse outcomes” (Cashion et al., 2021).

Conclusion

As the number of SOT recipients continues to grow, it is probable that any PCP will likely encounter transplant patients at some point in their career. SOT patients and in particular heart transplant recipients face multiple comorbidities. Role ambiguity, PCP’s inadequate transplant knowledge, and limited access to crucial patients’ clinical information have been identified as some of the contributing factors to omission and duplicity of services. Although some experts claim that the PCP is well equipped to manage the care of SOT recipients, others argue that gaps in education and communication can hamper effective care coordination for this vulnerable population. Recognizing the need to build a stronger framework of collaboration between the transplant center and the PCP through a systematic process of education and communication, can enhance the PCP’s knowledge, confidence level and willingness to co-manage the care of heart transplant recipients. At the same time, these measures can expand the care coordination across health systems and improve SOT patients’ health outcomes.

Chapter 3

Project Design

The purpose for this DNP project was to investigate if implementing a systematic method of education and communication between the primary care providers and the transplant center will increase primary care providers transplant knowledge, their confidence level, and willingness to co-manage the care of heart transplant recipients. The Iowa model will serve as a guide to translate this Doctor of Nursing Practice (DNP) project into practice. The Iowa model uses a problem-solving approach to assist providers in numerous settings translate study findings into practice to improve patients' outcomes (Zhao et al., 2016). This is concise model which uses 7 steps and feedback loops to direct the process change. Once the problem where change is warranted is identified, the PICOT question is then designed to obtain the best evidence with the aim at improving patients' outcomes.

PICOT question: Will a systematic method of education and communication between the primary care provider and the transplant center increase the primary care provider's knowledge, level of confidence and willingness to co-manage the care of heart transplant recipients immediately or within days of participating in the educational seminar?

A quantitative, non-experimental, correlational study design was chosen and guided by the research question. A Likert scale is administered as a pre-survey to capture baseline primary care providers knowledge about transplant most common practices as well as their confidence level and willingness to co-manage the care of heart transplant recipients. The primary care provider will listen to a 30-minute video-recording PowerPoint presentation explaining a coordination of care manual on topics related to cardiac transplantation. A post-Likert-scale survey will be completed after the educational presentation.

Aims, Outcomes, and Measures are attached in the appendix (A). The first aim of the study is to establish a systematic method of education about the most common practices in cardiac transplantation

to increase primary care providers knowledge to co-manage the care of heart transplant recipients. The second aim is to assess primary care providers confidence level to co-manage the care of heart transplant recipients. The third aim of the study is to assess primary care providers willingness to co-manage the care of heart transplant recipients. Further details and measurements for these aims are outlined in the attached appendix attachment (A).

Project Site and Population

The clinical agency is prestigious hospital system located in South Florida. The outpatient clinic provides highly specialized care for advanced heart failure, left ventricular devices (LVADs) and heart transplant patients. The transplant/heart failure team has two cardiothoracic surgeons, four cardiologists, seven nurse practitioners, eight coordinators and four navigators. In my role as an advanced practice nurse, I interact daily with all providers, coordinators, navigators, and patients.

The study will enroll primary care providers (PCPs) from the tri-county area (Miami-Dade, Broward, and Palm Beach). PCP participants ages will range between 25-75 years old. These providers will have a minimum of one year of experience in primary care and some previous clinical exposure transplant patients. PCPs may be recruited from privately own or hospital base practices. PCPs with less than 1 year of experience or practicing outside the tri-county area will be excluded. Providers will be recruited from a primary care provider database in the tri-county area and the invitation will be extended to additional providers within the same practice. Providers will be contacted via phone or email to participate.

A SWOT analysis has been performed (attached in appendix J). Some strengths of the study include this being a topic of significance for the transplant population, PCPs, and the transplant center. There is an abundance of research data demonstrating how substandard coordination of care between the transplant center and PCPs has been implicated in medication errors, duplicity of essential services and hospital admissions. There is also current evidence that community providers do not feel confident

when rendering care to transplant recipients and some of these barriers can be addressed by education and guidelines, thereby enhancing coordination of care. Additional strengths of this study include the study tool which was developed to measure the data that is relevant to the DNP project. The study tool was appropriately validated and demonstrated excellent reliability with a Cronbach's Alpha coefficient of 0.92. Lastly, the DNP project objectives aligned with the organization's priority. Stakeholders including the Transplant Program Administrator Director, Vice President of The Transplant Institute and Chief Nurse Executive contributed to the approval of the clinical site at my institution to conduct project implementation. My preceptor effectively assisted with the project organization, action plan and key stakeholders' identification in the approval process of the DNP project implementation at my institution. Some of the weaknesses of the project are the limited resources and time constraints being that there is no funding for the project and the advanced practice nurse will be responsible for contacting providers, discussing the project, and sharing the transplant education which can be time consuming. There are several opportunities with this project to close the existing transplant knowledge gap for PCPs in the community. These measures will improve collaboration between the transplant specialists and PCPs in co-managing the care of heart transplant recipients; thus, decreasing omission or duplicity of services, medication discrepancies and hospital admissions for the cardiac transplant population. As previously noted the study tool reliability at the onset of the project was considered to be a threat.

Methods

A 14-item Likert scale survey will be administered to each provider consenting to participate in the study at baseline. The survey will evaluate the PCP perception regarding various aspects of coordination of care with the transplant center, their knowledge about most common cardiac transplant practices, and their confidence level and willingness to co-manage the care of heart transplant recipients. Survey completion time is approximately 10 minutes. Intervention will include a 30-minute video-recorded educational presentation explaining a coordination of care manual on topics related to

transplant care. An identical 14-item Likert scale survey will be readministered to each participant immediately after the intervention. Providers contact information will be obtained from a primary care providers data base in the Tri-county area (Miami-Dade, Broward, and Palm Beach). Providers will be contacted by the principal investigator on the phone or via email. After discussing the purpose of the study with each provider individually, those agreeing to participate will electronically sign the study consent through the DocuSign application. Likert scale surveys will be accessed through a web-based link called Qualtrics which will be emailed to providers' professional email together with the educational presentation and coordination of care manual.

Measurements

Since the resources are limited in organ transplantation, no tool was found that could accurately measure the study intervention impact on the study variables. Identical pre and post Likert scale surveys were developed to accurately evaluate PCPs' knowledge about most common cardiac transplant practices, their confidence level and willingness to co-manage care for heart transplant recipients. Prior to the study onset, three experts in the area of transplantation provided validation that the Likert scales met the intent to assess PCPs' transplant knowledge, confidence level, and willingness to render health care to heart transplant recipients. The study tool reliability was established by five participating providers and the tool demonstrated an excellent reliability with a Cronbach's Alpha coefficient of 0.92. Each survey should take approximately 10 minutes to complete. Providers should spend no more than 30 minutes to listen to the video recorded presentation explaining the coordination of care manual available as a resource to all participating providers.

Data collection procedures

Potential participants will be contacted days prior to the beginning of the study to discuss the study details and be invited to participate. The invitation to participate in the study will be extended to other providers in the respective practices. The study will be conducted at PCPs personal offices in the

tri-county area (Miami-Dade, Broward, and Palm Beach). Participants will complete a 14-item Likert scale survey pre and post intervention to evaluate their perceptions about various aspects of coordination of care with the transplant center, their knowledge about most common transplant practices, their confidence level, and willingness to participate in the care of heart transplant recipients. Each survey will take approximately 10 minutes to complete. The study intervention consists of a 30-minute video recorded presentation explaining the coordination of care manual which will be shared with each participating provider. Likert scale surveys will be access through a web-based link call Qualtrics which will be emailed to providers professional email along with the video-recorded presentation and coordination of care manual.

Data analysis

The Likert-scale surveys are a 5-point rating scales ranging from a number 1 assigned to those answers showing to strongly disagree with the question statement to number 5 for strongly agreeing with the question statement and a neutral point in the middle (Attached in Appendix N). The resulting numbers will be tabulated to achieve a mean score reflecting participants' transplant knowledge, confidence level and willingness to co-manage the care of heart transplant recipients. A paired t-tests will be conducted to determine if the education intervention had an impact in providers cardiac transplant knowledge, confidence level and willingness to co-manage the care of heart transplant recipients.

Budget

Attached in appendix (D) the project budget is summarized in a table format. The total cost of a coordination of care manual \$ 0, these will be sent electronically to each participating provider. The cost for using Docusign to send electronic consent forms to providers is \$75.00 for 3 months. The cost for using Qualtrics to share surveys with participating providers \$ 0, This was included in the DNP program tuition. The cost for using Intellectus Statistics to analyze data collection is \$ 99.99 for a month. In

addition, stipends of \$25 per provider to cover lunch while they complete the pre and post surveys accounts for a total of \$600. The total costs of the project are projected to be at \$775.

Timeline

Attached in the Appendix (B) is the study GANTT chart. It demonstrates the time of events from the moment the project was initiated through the period of completion. The project started on January 2021. During this time, emphasis was placed on choosing a pressing topic in my area of practice needing improvement or change. After the project topic was chosen in February 2021, I began to breakdown the major concepts of the project, which was completed in the month of February 2021. The literature review began in February 2021 through October of the same year and as the project evolved, new research data was required. The development of the study tool began in September of 2021. In this same month, experts in the area of transplantation validated the tool to accurately measure the aims intended with this DNP project. I began the development of a coordination of care manual to be shared with participating providers on October 2021 and this was finalized in January 2022. I also developed a video recording PowerPoint presentation explaining the coordination of care manual to be shared with participating providers. I began working on this portion of the project in December 2021 and I completed it in March 2022. In the month of March 2022, I submitted the IRB proposal to both the University of Tampa and my work institution. In March of 2022, the study tool was administered to five providers to obtain the tool reliability. I received IRB approval from both the University of Tampa and my work institution IRB committee by the month of April 2022. The project implementation occurred from May 2022 through August of the same year. All data collection and statistical analysis were completed from August through the month of October of 2022. Project presentation and dissemination of findings were carried out in October through December of 2022.

Ethical Considerations/Protection of Human Subjects

The IRB approval was obtained from the University of Tampa prior to the initiation of the study which is attached in appendix (L). The Institution IRB waived IRB approval requirements since the study did not involve patient participation. Sufficient information was shared with participants including the aims and objectives of the study to assure participants understand the implication of their participation when they signed the informed consent. A copy of the informed consent is also attached in appendix (M). Participants were informed of their voluntary participation and their right to withdraw from the study at any time with no penalties. There were no risks to participating subjects in this study; however, taking a survey could be stressful. To minimize potential stressor risks, participants were informed of potential benefits of participating in the study such as acquiring new knowledge about the care needs of heart transplant recipients, increasing their confidence in managing the care for organ transplant recipients and gaining collaborative relationships with providers across specialties. Participants data was kept confidential through an ethical and protective process. A participating number was assigned to each participant to match each set of Pre and post Likert scale surveys. Study documents were sent electronically through a secure password protected email. Only the investigator had access to this email. Data analysis will be stored in a password protected laptop computer only accessed by the principal investigator and located in the investigator's office. The data will only be used for the purpose of this study, and it will be kept for five years, time in which data will be erased from the computer's hard drive using a commercial software application.

Chapter 4

Outcomes

The DNP project implementation was carried out in the Summer of 2022 from May 24th through August 12. Participants were selected from a primary care providers data base in the Tri-County area (Miami-Dade, Broward, and Palm Beach County). A total of twenty-four (24) participants were enrolled within a period of 10 weeks. Initially the participants response was low. By the first month, there were only five enrollees. To overcome this deficit, the project manager instituted automatic reminders. By week eight of the project, 26 participants had agreed to participate; however, only 12 completed both pre and post study surveys. The project manager revisited the process with the project preceptor and Chair. The correction plan consisted of follow up phone calls and emails to each individual provider. This intervention revealed that a large percentage of providers were not receiving the educational seminar (Coordination of Care Manual and PowerPoint presentation) and post survey due to glitches in technology. The project manager remedied the situation by contacting the providers via phone or email minutes after resending the material. This intervention was successful, and the number of enrollees reached a total count of 24.

The study hypothesis anticipated that a systematic method of education and communication between primary care providers and the transplant center, will improve providers transplant knowledge, their confidence level and willingness to co-manage the care of heart transplant recipients immediately or within days of completing the post Likert scale. After analyzing the data, the hypothesis was proven correct. The study participants demonstrated an increase in their overall knowledge of most common cardiac transplant practices, the confidence level and willingness to co-manage the care of heart transplant recipients after participating in one hour of educational seminar explaining the coordination of care manual. The study results are further outlined in Table 1 below.

Table 1

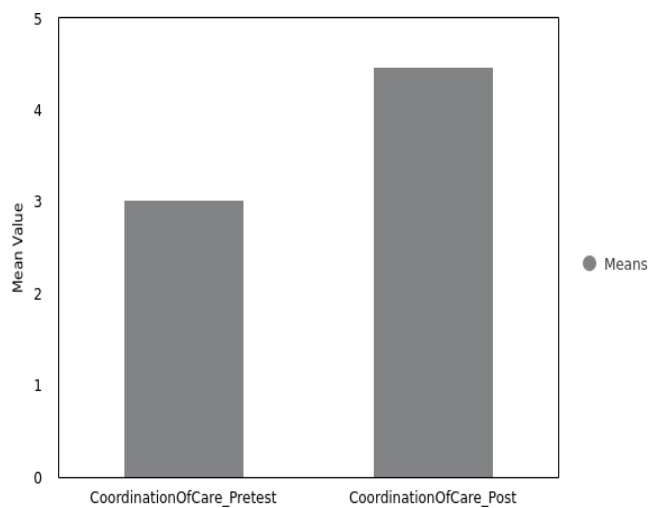
Two-Tailed Paired Samples t-Test for the Difference Between CoordinationOfCare-Pretest and CoordinationOfCare-Post mean scores

CoordinationOfCare-Pretest		CoordinationOfCare-Post		<i>t</i>	<i>p</i>	<i>d</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
3.02	0.79	4.48	0.49	-7.39	< .001	1.51

A paired-sample t-test was conducted to compare providers cardiac transplant knowledge, confidence level and willingness to co-manage care for heart transplant recipients prior and after the implementation of one-hour educational seminar. This intervention consisted of a PowerPoint presentation explaining the Coordination of Care Manual and long-term care practices of transplant recipients. The participants' Pre-test score on average was lower prior the educational seminar ($M=3.02$, $SD=0.79$) than the Post-test score after their participation in one-hour educational seminar ($M=4.48$, $SD=0.49$). This improvement was statistically significant based on an alpha value of .05, $t(23) = -7.39$, $p < .001$ indicating the null hypothesis can be rejected. The bar chart below (figure 1) shows the comparison of participants' tests scores before and after the educational intervention.

Figure 1

Comparison of coordination of care participants Pre-test and Post-test mean scores



Paired-sample *t*-tests were also conducted to compare each category individually: Participants knowledge, confidence level and willingness to comanage the care of heart transplant recipients. The participants Pre-test knowledge score was lower ($M= 2.85$, $SD=0.93$) prior to the educational seminar than the Post-test knowledge score ($M=4.47$, $SD= 0.57$) after participating in the educational seminar. The result of the two-tailed paired samples *t*-test was statistically significant based on an alpha value of .05, $t(23) = -6.92$, $p < .001$. Table 2 below, outlines the data from the pared sample *t*-test correlation.

Table 2

Two-Tailed Paired Samples t-Test for the Difference Between Knowledge-Pretest and Knowledge-Posttest mean scores

Knowledge-Pretest		Knowledge-Posttest		<i>t</i>	<i>p</i>	<i>d</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
2.85	0.93	4.47	0.57	-6.92	< .001	1.41

The participants also showed an increase in their confidence level and willingness of co-managing the care of heart transplant recipients after participating in one hour of educational seminar. The result of the two-tailed paired samples *t*-test in the area of confidence was statistically significant based on an alpha value of .05, $t(23) = -6.51$, $p < .001$. The mean Confidence-Pretest score was significantly lower than the mean Confidence-Posttest score. The results are presented in Table 3

Table 3

Two-Tailed Paired Samples t-Test for the Difference Between Confidence-Pretest and Confidence-Posttest mean scores

Confidence-Pretest		Confidence-Posttest		<i>t</i>	<i>p</i>	<i>d</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
3.19	0.82	4.48	0.45	-6.51	< .001	1.33

In the area of willingness, the result of the two-tailed paired samples *t*-test was also statistically significant based on an alpha value of .05, $t(23) = -2.81$, $p = .010$. The mean of Willingness-pretest score

was significantly lower than the mean of Willingness-posttest score. The results are presented in Table 4.

Table 4

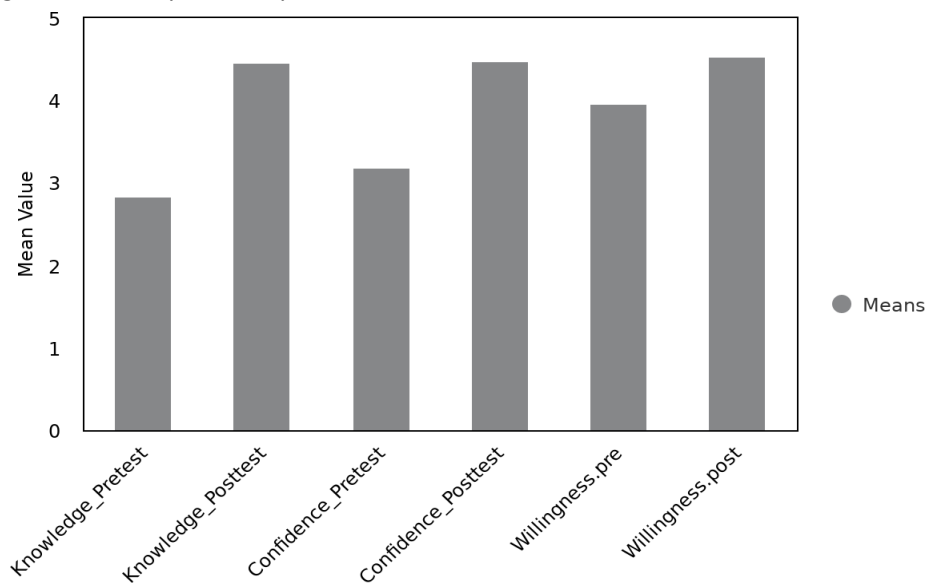
Two-Tailed Paired Samples t-Test for the Difference Between Willingness-Pretest and Willingness-Posttest mean scores

Willingness-pre		Willingness-post		<i>t</i>	<i>p</i>	<i>d</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
3.96	0.95	4.54	0.66	-2.81	.010	0.57

Although there was an increase in providers willingness to co-manage the care of heart transplant recipients, this was the area of lowest improvement. A plot chart below (figure 2) shows the distribution scores for all three categories before and after the intervention.

Figure 2

Comparison Pre/Post-tests mean scores for categories: Knowledge, Confidence level and Willingness to co-manage heart transplant recipients care



Upon completion of the study implementation the researcher intended on having at least 95% of the participating PCPs increase their knowledge about most common transplant cardiac practices, their confidence level and willingness to co-manage the care of heart transplant recipients. 95.8% of

participating providers demonstrate an increase in both their knowledge and confidence level in co-managing heart transplant patients' care; however, only 58.3% of PCPs demonstrated and increase in their willingness to co-manage the care of heart transplant recipients. The latter results although statistically significant may indicate that further support from the transplant center may be required to engage PCPs in co-managing the care of heart transplant recipients. Surprisingly, participants pre-willingness score was already high at the start of the project implementation despite demonstrating lack of transplant knowledge and confidence in co-managing care for heart transplant recipients. The study results also correlated with PCPs' arguments found in the literature about having limited access to transplant specialists, patients' medical records and transplant centers guideline to co-manage transplant recipient's comorbidities. The mean of Communication with transplant Pre-Test score was significantly lower than the mean of Communication with transplant Post-test score. The results are presented in Table 5.

Table 5

Two-Tailed Paired Samples t-Test for the Difference Between Communication with transplant centers Pre-Test and Communication with transplant centers Post-test mean scores

Communication.with. transplant. Pre-Test		Communication.with. transplant. Post-test		<i>t</i>	<i>p</i>	<i>d</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
2.74	1.04	4.40	0.55	- 6.87	< .001	1.40

Demographic findings revealed that 76.9 % of participants reported that their medical or NP school curriculum did not include a transplant component. More than half of these providers or 46.15% were hospital based and they averaged 10 years of experience in practice. Although 84.6 % of the participating providers had cared for a transplant patient in the past, 69.23% were no longer active providers of a transplant patient even when 69% reported transplant patients in their practice.

Participants ages averaged 47.8 years and the vast majority of participants or 76.9 % were female.

Demographics frequencies and percentages were described as follows: The most frequently observed category of Sex was Female ($n = 20$, 76.92%). The most frequently observed category of Practice was Hospital Base ($n = 12$, 46.15%). The most frequently observed category for question: Are you currently an active provider of a transplant patient) was No ($n = 18$, 69.23%). The most frequently observed category for question: Have you provided care for a heart transplant patient? was Yes ($n = 22$, 84.62%). The most frequently observed category for question: Are there any transplant patients in your practice, was Yes ($n = 15$, 57.69%). The most frequently observed category for question: Did your medical or /APRN school curriculum include a transplant component? Was, No ($n = 20$, 76.92%).

Strengths and Limitations

One of the strengths of the project is that this is a topic of significance for the transplant population, primary care providers, and transplant specialists. All PCPs who participated in the study had either taken care of an organ transplant recipient in the past or reported having transplant patients in their practice; thus, minimizing the possibility of outliers and increasing the power of the study results. Another strength of the study is that most participants described similar experiences when caring for transplant recipients even though they were recruited from various counties in South Florida and their practice setting varied. In addition, key information drawn from the survey questionnaires showed that most providers described a lack of communication between the transplant center and primary care providers in the community. This information supports arguments found in the literature about gaps in coordination of care for organ transplant recipients.

Because surveys links and educational seminar material were shared with each individual participant via email, participants were able to complete them on their own free time. Another benefit of sharing the study surveys questionnaires and educational seminar material via email is that more participants can be reached at once. Inversely, this method will not deliver immediate results as when time is allocated for subjects to complete the study surveys while they participate in an in- person educational seminar presentation. One more study limitation was the sample size. The project goal was to enroll a minimum of thirty-five participants; yet only twenty-four participants completed the study which could compromise data results. The researcher also encountered technology glitches when sharing large

educational files via email which contributed to some enrollees not completing the post surveys. Time constraint was an additional limitation of the study. The researcher was responsible for contacting each provider individually to explain the project goals and objectives which proved to be time consuming and caused delays in the project implementation.

Implications

The implication of the study results for clinical practice suggest that efforts should be made to incorporate a systematic method of education and coordination of care between transplant centers and PCPs in the community. The data obtained from this DNP project showed that PCPs transplant knowledge, confidence level and willingness to co-manage the care of heart transplant recipients increased after participating in an educational seminar and receiving resources about most common transplant cardiac practices and transplant center contact information. Furthermore, the study results validated the current literature which supports education and communication as evidenced based solutions to close the existing gaps in coordination of care for transplant recipients.

Recommendations for Future Projects

If the study could be replicated, more time could be dedicated to reach providers at an earlier phase in the study and secure their commitment to participate. These actions would have saved the primary researcher time to be allocated in other project activities. Likewise, the Educational Seminar would have been shared with providers either by zoom meetings or in person presentations to reach multiple providers at a single educational session and seized the opportunity to allow for surveys completion. Ideally if no technology glitches would have been encountered, the intended number of enrollees would have been reached. Several participants

indicated that they did not receive the educational material and post surveys which precluded their participation in the study.

Dissemination Plan

Wilson and colleagues defined research dissemination “as a planned process that involves consideration of target audiences, consideration of the settings in which research findings are to be received and communicating and interacting with wider audiences in ways that will facilitate research uptake and understanding” (Ross-Hellauer et al., 2020). This Doctor of Nursing (DNP) project will be presented at the University of Tampa committee which will take place in the fall of 2022. The most recent University of Tampa cohort of DNP students will also be in attendance.

Dissemination of the study findings will be shared internally with colleagues, the clinical staff and upper administration through oral presentations and journal clubs. External dissemination to professional audiences may occur at conferences, through oral or poster presentations. The DNP student will share the study key finding with the stakeholders via email or oral presentation. Ultimately, the DNP student plans to publish a written manuscript of the project in a peer-review journal to reach professional around the country.

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APPENDIX A: AIMS, OUTCOMES and MEASURES

AIM 1: Establish a systematic method of education about most common practices in cardiac transplantation to increase primary care providers transplant knowledge to co-manage the care of heart transplant recipients

OUTCOME 1a: At least 95% of PCPs will increase their knowledge about most common cardiac transplant practices

MEASURE 1a: Pre and post-tests will be provided before and after education presentation explaining a coordination of care manual to evaluate primary care providers' knowledge in the area of cardiac transplantation and the long term-care management of adult heart transplant recipients

Calculation of measure 1a: Percentage of providers' knowledge will be calculated on pre and post-tests. To determine significance, a paired t-test will be used to calculate the difference in scores.

AIM 2: Primary care providers confidence level to co-manage the care of heart transplant recipients will be assessed to identify gaps in communication and coordination of care between the transplant center and primary care providers.

OUTCOME 1a: At least 95% of primary care providers will increase their confidence level to co-manage the care of heart transplant recipients.

MEASURE 1a: Pre and post-test will be administered before and after education presentation explaining a coordination of care manual to evaluate primary care providers confidence level to co-manage the care for heart transplant recipients.

Calculation of measure 1a: Percentage of providers' confidence level to co-manage the care of heart transplant recipients will be calculated based on pre and post-tests results. To determine significance, a paired t-test will be used to calculate the difference in scores.

AIM 3: Primary care providers willingness to co-manage the care of heart transplant recipients will be assessed to identify gaps in communication and coordination of care between the transplant center and primary care providers.

OUTCOME 1a: At least 95% of primary care providers will increase their willingness to co-manage the care of heart transplant recipients.

MEASURE 1a: Pre and post-test will be administered before and after education presentation explaining a coordination of care manual to evaluate primary care providers willingness to co-manage the care for heart transplant recipients

Calculation of measure 1a: Percentage of providers' willingness to co-manage the care of heart transplant recipients will be calculated based on pre and post-tests results. To determine significance, a paired t-test will be used to calculate the difference in scores.

APPENDIX B: GANTT CHART

TASK		RESPONSIBLE PERSON	DUE DATE	COMMENTS
Develop a protocol for the coordination of care of heart transplant recipients and Tool to evaluate primary care providers'(PCP) transplant knowledge, confidence level, and willingness to co-manage care for heart transplant recipients.				
	Finalize Project Topic	DNP student, NUR 700 faculty, UT chair	2/2021	Topic finalized so that all DNP courses can build on the topic
	Literature Review	DNP student	2/2021-10/2021	Begins at RESIDENCY I
	Determine major concepts of project	DNP student, UT chair, preceptor	2/2021	Begins at RESIDENCY I. Meeting with project chair. Meeting with clinic preceptor.
	Develop study tool	DNP student, UT chair, preceptor Tool (Likert-scale survey) approved by three experts in the area of cardiac transplantation	9/2021	Tool (Likert Scale- Survey) to assess the PCP Knowledge, confidence level and willingness to co-manage the care of heart transplant recipients
	Develop a care coordination manual	DNP student, UT chair	10/2021-01/2022	Completed coordination of care manual to be shared with the PCP during education seminar
	Develop a Videorecording PowerPoint presentation explaining Care Coordination Manual	DNP student, UT chair, preceptor, agency	12/2021-3/2022	Completed Video-Recording PowerPoint presentation explaining Care Coordination Manual to be shared with each participating provider
	Expert review of Tool (Likert-scale survey) and protocol	DNP student, UT chair, preceptor, topic experts	09/2021	Edit Tool (Likert-Scale Pre and Post surveys) based on suggestions from experts in the area of transplantation
	Submit for UT IRB approval	DNP student, UT chair	03/2022	Completed
	Submit for Agency IRB approval	DNP student, UT chair	03/2022	Completed
	Obtain UT IRB approval	DNP student, UT chair	04/2022	UT IRB Approval obtained
	Obtain Agency IRB approval	DNP student, UT chair	04/2022	Agency IRB Approval obtained

	Tool (Likert Scale Pre-Test Questionnaire and Post-Test surveys)	DNP student, UT chair	03/2022	Administered to five providers prior to conducting actual study to test for reliability of the Tool. Reliability obtained
	Tool (Likert Scale Pre-Test Questionnaire and Post-Test surveys)	DNP student, UT chair	5/2022-8/2022	Administered prior and after educational seminar by project manager to determine providers' transplant knowledge, confidence level and willingness to co-manage the care for heart transplant recipients.

Data Collection				
	Pre-implementation baseline data from Tool (Likert Scale, Survey)	DNP student, UT chair, clinic manager	5/2022-8/2022	Collect pre-implementation data yielded by Pre-questionnaire survey
	Post-implementation data from Tool (Likert Scale, Survey Questionnaire)	DNP student, UT chair	5/2022-8/2022	Collect post-implementation data yielded by Post-questionnaire survey
Evaluation of Findings				
	Evaluate pre-implementation data	DNP student, UT chair	09/2022	Done with the help of the Intellectus statistics
	Evaluate post-implementation data	DNP student, UT chair	09/2022	Done with the help of the Intellectus statistics
	DNP PROJECT PAPER	DNP student, UT chair	12/2022	Write DNP PROJECT PAPER and submit to UT repository.
	Project Presentation	DNP student, UT chair	11/2022	Present findings to DNP students at Residency III

APPENDIX C: STAKEHOLDER MANAGEMENT CHART

STAKEHOLDER	LEVEL OF INVESTMENT	PERSPECTIVE OF IMPORTANCE TO THE WORK	SUCCESS	ROLE	INVOLVEMENT STRATEGY	RESPONSIBILITIES	COMMUNICATION METHOD
CHAIR	High	Time consuming Level of risk Discussion Feedback	Crucial	Project chair Revise and approve required documents including DNP project topic selection, proposal approval from the DNP project oversight committee, development of project timeline and offer guidance for project design, implementation and dissemination	Oversee and guide project development Expert consultant for research measurement tools / surveys Review and approve all required elements of DNP project for IRB approval and project implementation	Provide expert guidance and direction to project manager (UT DNP STUDENT) Provides guidance and reviews documents prior to IRB submission and project implementation Assist DNP student in identifying measurable outcomes	Weekly/Monthly zoom meeting Emails Ongoing open discussion
PRECEPTOR	High	Time devoted to project discussion, reviewing documents, and providing feedback	Crucial	Project Providing guidance in the design, implementation, and evaluation of the project Guidance and feedback in scholarly writing Work to mitigate barriers to the project implementation	Overall project development, coordination, implementation, and evaluation	Lead, coach and be a resource for the DNP student	Weekly/monthly in person/zoom meetings Ongoing discussions Feedback Emails

PhD FACULTY	High	Time allocated to determine method for research design including sample size needed and the timing of measurements, identifying threats to validity Statistical analysis	Crucial	Consultant	Expert consultant for research measurement tools/surveys	Provide guidance and direction for data analysis and data mining Provide feedback on elements of project pertaining to project methods	Email Discussion Feedback
Experts to Validate Study Tool	Moderate	Time to analyze that Survey questions are appropriate to evaluate what is intended to be measure	Crucial	Consultants	Providing feedback on Likert-scale survey questions validity	Ensure the survey questions are framed to objectively measure the DNP project objectives	Phone discussion Emails
Primary Care Providers	Moderate	Time will be committed to listening to the Video recorded PowerPoint presentation and completion of Pre/Post Likert-scale surveys	Crucial	Study participants	Participant Feedback on project implementation.	Participate in project implementation Receive educational seminar explaining coordination of care manual Complete Pre/Post Likert scale surveys to evaluate providers transplant knowledge, confidence level and willingness to co-manage the care of heart transplant recipients.	Phone discussion about project goals & objectives Feedback Email communication

Agency Administration	Low	Time will be committed to discussing with principal investigator the DNP project objectives and benefits to the institution and the cardiac transplant population	Crucial	Approve DNP project clinical site and project implementation	Ensuring IRB approval is obtained prior to conducting study	Ensure DNP project objectives align with the agency's priority	Face to Face discussion Emails
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APPENDIX D: BUDGET

ITEM	ESTIMATE	ACTUAL	COMMENTS	VARIANCE
MATERIALS				
Coordination of Care Manual to be shared with each participating PCP	\$0		PCPs will receive The Care Coordination Manual through a link to keep as a resource	
Intellectus Statistics For data analysis	\$99.00/month		The project manager will assume all costs associated to carry out project.	
Docusign To send electronic consent forms to providers	\$75.00/3 months membership		The project manager will assume all costs associated to carry out project.	
Qualtrics To send Likert-scale surveys to	\$0		Qualtrics at no cost to the University of Tampa DNP student	
Food: Stipend for each participating provider	\$25.00 card/provider Total: \$ 600		The project manager will assume all costs associated to carry out project.	
Projected Total: \$ 1000 / Actual Total: \$ 774				

APPENDIX E: STAKEHOLDER RESPONSIBILITY CHART

ACTIVITY	CHAIR	PRECEPTOR	PROJECT MANAGER	PRIMARY CARE PROVIDERS	TRANSPLANT LEADERS	TRANSPLANT SPECIALISTS
Project Approval	R	r, C	R	I	R	R
Research instruments and surveys	C	C	R	I	I	I
IRB Approval	C, I	C, I	R	N/A	I	I
Conducting Tool Validity	C, I	C, I	R	I	N/A	N/A
Conducting Tool Reliability	C, I	C, I	R	N/A	N/A	N/A
Conducting Research Study	C, I	C, I	R	r	I	I
Analyze data from pre/post-tests from providers	I	I	R	N/A	N/A	N/A
Manuscript submission	A, C	C, I	R	N/A	N/A	N/A
Present study findings to stakeholders	A, C	C, I	R	I	N/A	N/A

Legend: *A = needs to provide Approval; R = responsible; r = co-responsible; C = Consultant; I = needs to be Informed.*

APPENDIX F: WORK BREAKDOWN STRUCTURE CHART

Coordination of Care Protocol For Heart Transplant Recipients.					
HEART TRANSPLANT COORDINATION OF CARE PROTOCOL	TRAINING	IT	IMPLEMENTATION	DATA COLLECTION	EVALUATION AND DISSEMINATION
UT IRB Approval & letter of support for project	Develop Pre/Post-Likert Scale Surveys (Tool) Establish Tool validity and reliability	Develop a video recording PowerPoint educational seminar explaining a coordination of care manual (Intervention)	Complete consent form for each participating PCP Administer Pre-Likert Scale Survey Provide educational seminar explaining the coordination of care manual to each participant (intervention) Administer Post-Likert-scale survey	Collect provider's Pre/Post Likert Scale Surveys data	Analyze provider's Pre/Post Likert-Scale Surveys data. Present findings to Preceptor, Chair, Agency and Stakeholders
Preceptor/Agency letter of support for project	Conduct informal meeting with the agency administration to discuss the DNP project objectives and progress of the project development	Share progress on study tool development/validity/reliability	Develop a systematic method of education and communication between the transplant center and community PCPs to improve coordination of care for heart transplant recipients	Collect provider's pre/post Likert scale survey data	Analyze study data results. Present finding to Agency administration/leadership

UT IRB Approval & letter of support for project	Develop Pre/Post-Likert Scale Surveys Establish Tool validity and reliability	Develop a video recording educational seminar explaining coordination of care manual (Intervention)	Complete consent form for each participating PCP Administer Pre-Likert Scale Survey Provide educational presentation and coordination of care manual to each participant (intervention) Administer Post-Liker scale survey	Collect provider's Pre/Post Likert Scale Surveys data	Analyze provider's Pre/Post Likert-Scale Surveys data Present findings to Preceptor, Chair, agency and stakeholders
Project Manager					Complete DNP project paper.
					Submit manuscript to UT Repository

APPENDIX G: RISK MANAGEMENT CHART

RESPONSE to REDUCE, AVOID, or MANAGE RISK		INDICATOR AND THRESHOLD	PROBABILITY L/M/H	IMPACT L/M/H	STATUS
Risk 1: Inability to commit community PCPs to complete pre/post Likert-scale survey withing the allocated time to conduct the study					
1.1	The project manager is the responsible individual to contact/screen community PCPs to discuss the DNP project goals and objectives and schedule meetings to answer questions about the study	Clear opportunity	H	H	Will assess early and confirm that PCPs are engaged to participate in the study
1.2	Schedule individual meetings to ensure pre/post Likert scale surveys are completed withing the allocated time to conduct the study Project manager intermittently check-in with PCPs to ensure surveys are completed	Achievable with prompt coordination	H	H	Will assess if further clarification is needed to complete study surveys within the allocated period of time

APPENDIX H: LOGIC MODEL

INPUTS	OUTPUTS		OUTCOMES		
	Activities	Participants	Short-term	Medium-term	Long-term
<ul style="list-style-type: none"> • Research findings • Pre/post Likert-scale surveys • Coordination of care manual • Educational PowerPoint presentation/educational seminar • Time • Resources • Project Chair • Project Manager • Project Preceptor 	<ul style="list-style-type: none"> • Assess knowledge of primary care providers of the most common practices and long-term care of heart recipients and use of valid screening tool- (pre/[post Likert scale surveys). • Conduct an hour educational seminar with community primary care providers for an opportunity to improve their knowledge about the most common practices in cardiac transplantation and increase their confidence level and willingness to comanage the care of heart transplant recipients. 	<ul style="list-style-type: none"> • Community primary care providers 	<ul style="list-style-type: none"> • Establish a systematic method of education and communication between the transplant center and PCPs in the community 	<ul style="list-style-type: none"> • Improve PCPs knowledge about the most common practices and long-term care of heart recipients • Building on knowledge of transplant most common practices to increase PCPs confidence level to co-manage the care of heart transplant recipients • Changing attitudes and increase PCPs willingness to co-manage the care of heart transplant recipients 	<ul style="list-style-type: none"> • Increase the pool of PCPs who are actively seeing heart transplant recipients in their practice • Improve coordination of care for heart transplant recipients • Minimize duplicity of essential services for heart transplant patients • Decrease medication discrepancies among heart transplant recipients • Decrease heart transplant patients' adverse health outcomes
ASSUMPTIONS			EXTERNAL FACTORS		

<ol style="list-style-type: none"> 1. Implementing a systematic method of education and communication will improve PCPs knowledge about the most common practices and long-term care of heart transplant recipients 2. PCPs will feel confident in co-managing the care of heart transplant recipients 3. PCPs will be willing to co-manage the care of heart transplant recipients. 4. Organization will make necessary flow changes to implement a systematic method of education and communication between the transplant center and PCPs to optimize coordination of care for heart transplant recipients 	<ol style="list-style-type: none"> 1. The transplant center and community PCPs adhere to a systematic method of education and communication to improve coordination of care for heart transplant recipients 2. Organizational requirements, such as implementing policy and procedures for systematic method of education and communication between the transplant center and community PCPs 3. Increase the pool of community PCPs who actively care for heart transplant recipients
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APPENDIX I: COMMUNICATION PLAN

WHAT	WHO	PURPOSE	TIMING	METHOD
Meeting with preceptor	FROM: Project Manager TO: Clinic preceptor. Dr. Teresa Bueno	To discuss and edit project.	Monthly/Bi-weekly and as needed	Meetings Logbook Review direction of the project
Meeting with Chair	FROM: Project Manager TO: Dr. Umberger UT Chair	To discuss and edit project.	Monthly and as needed	Meetings Review Project Components Review direction of the project
Project implementation	FROM: Project Manager TO: Community PCPs	To assess if a systematic method of education and communication between the transplant center and PCPs will increase PCPs transplant knowledge, confidence level and willingness to co-manage the care of heart transplant recipients	Initiate by: 05/22	Share The Coordination of Care Manual and PowerPoint presentation/Educational seminar through electronic access Share Pre/Post surveys through electronic access (Qualtrics)
Data Collection	FROM: PCPs TO: Project manager	To obtain results from baseline pre-Likert-scale survey and identical post-Likert scale survey after listening to a PowerPoint educational presentation explaining a Coordination of Care Manual	Pre-data obtained by 06/2022 Post Data obtained by: 08/2022	Electronic access (Qualtrics)
Data Analysis	FROM: Project Manager TO: 711 Faculty; Intellectus Statistics; UT Chair	To complete data analysis utilizing Intellectus Statistics	Complete by: October 2022	Intellectus Statistics
Present findings to Agency	FROM: Project Manager TO: Agency	To disseminate findings via oral presentation	December 2022	DNP Project Presentation Day

APPENDIX J: SWOT ANALYSIS

S.W.O.T.	
Strengths	Weaknesses
<ul style="list-style-type: none"> - Topic of significance for the transplant population and primary care providers - Abundance of evidence in the literature demonstrating how ineffective coordination of care for heart transplant recipients can lead to under provision or duplicity of health services - Study tool was developed to measure the data that is relevant to the DNP project - The DNP project objectives align with the organization's priority 	<ul style="list-style-type: none"> - Limited resources and time constraints - Lack of funding for the project

Opportunities	Threats
<p>Close primary care providers' knowledge gap about the needs and care of heart transplant recipients</p> <p>Increase Primary care providers confidence and willingness to care for organ transplant recipients</p> <p>Primary care providers will gain professional collaborative relationships with providers amongst various specialties</p> <p>Provider's contributions can enhance the care and health outcomes of solid organ transplant recipients in the Tri-county area (Miami-Dade, Broward, and Palm Beach County)</p>	<p>Establishing the study tool reliability</p> <p>PCPs inability to commit to complete study surveys withing the established time</p>

APPENDIX K: Project Timeline Chart

	2021												2022											
Task Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Finalize Project Topic																								
Literature Review																								
Determine Major Concepts of Project																								
Develop Study Tool (Likert- Scale Surveys)																								
Develop Coordination of Care manual																								
Develop PowerPoint Presentation																								
Obtain Tool Validity																								
Submit UT IRB Approval																								
Obtain UT IRB Approval																								
Submit Institution IRB Approval																								
Obtain Institution IRB Approval																								
Obtain Tool Reliability																								
Project Implementation																								
Evaluate Pre-Implementation Data																								
Evaluate Post-Implementation data																								

APPENDIX L: IRB Approval

Re: **[Research Compliance]** Optimizing Coordination Of Care Between Primary Care Providers And The Transplant Center In The Co-Management Of Heart Transplant Recipients With The Implementation Of A Systematic Method Of Education And Communication

GD

Gleidys Davalos-Krebs

Fri 4/8/2022 1:19 PM

Submittable

Gleidys Davalos-Krebs:

The IRB has granted your proposal, Optimizing Coordination Of Care Between Primary Care Providers And The Transplant Center In The Co-Management Of Heart Transplant Recipients With The Implementation Of A Systematic Method Of Education And Communication, exempt status as described in 45 CFR 46.104 of the Department of Health and Human Services Policy for the Protection of Human Subjects. This indicates that no further involvement by the IRB is necessary.

If the protocol is modified from this submission, please notify the IRB as soon as possible. We have a form available with which to update your proposal.

Sincerely,

Dr. Stephen Blessing
IRB Committee Chair

APPENDIX: M

INFORMED CONSENT THE UNIVERSITY OF TAMPA

Project Title: Optimizing Coordination Of Care Between Primary Care Providers And The Transplant Center In The Co-Management Of Heart Transplant Recipients With The Implementation Of A Systematic Method Of Education And Communication.

Principal Investigator: Gleidys Davalos-Krebs, Coral Springs 33071; 9542408039

Purpose of Project: The goal of this project is to improve PCPs transplant knowledge, and the coordination of care between primary care providers (PCPs) and the transplant center in co-managing the care of heart transplant recipients.

Procedures: The study will be conducted at various PCP offices in the tri-county area (Miami Dade, Broward, and Palm Beach). Participants will complete a 14-item Likert scale survey pre and post intervention to evaluate PCPs' perceptions about various aspects of coordination of care with the transplant center, their knowledge about most common transplant practices, their confidence level, and willingness to participate in the care of transplant recipients. Each survey will take approximately 10 minutes to complete. The study intervention consists of a 30-minute video-recorded presentation explaining the coordination of care resource manual which will be shared with each participating provider

Risks/Benefits: No risks to participating subjects are anticipated at this time; however, taking a survey could be stressful e.g., participants would like to do well and complete information appropriately. Potential benefits to the study participants include acquiring new knowledge about the needs and care of heart transplant recipients, increasing their confidence in caring for organ transplant recipients and gaining professional collaborative relationships with providers amongst various specialties. Furthermore, providers' contributions will enhance the care and health outcomes of the transplant population in the tri-county area

Confidentiality: Data collection of this study will be confidential. To ensure confidentiality and anonymity of the participants, a number will be designated to each participant that will appear on the demographic and assessment scale surveys. Matching numbers will be assigned to each set of pre and post surveys. Study documents may be sent and received electronically to a secure password protected email only accessed by the investigator for the purposes of the study. Data analysis will be stored on a secured laptop computer only accessed by the investigator.

CONDITIONS OF PARTICIPATION

Participating in this project is voluntary, and refusal to participate or withdrawing from participation at any time during the project will involve no penalty or loss of benefits to which the subject is otherwise entitled. The principal investigator may terminate participation of a subject or the

project entirely without regard to the subject's consent. In the event of questions or difficulties of any kind during or following participation, the subject may contact the Principal Investigator as indicated above.

CONSENT

I have read the above information and my questions and concerns, if any, have been responded to satisfactorily by project staff. I believe I understand the purpose, benefits, and risks, if any, of the study, and give my informed and free consent to be a participant.

I have read the above information and my questions and concerns, if any, have been responded to satisfactorily by project staff. I believe I understand the purpose, benefits, and risks, if any, of the study, and give my informed and free consent to be a participant.

SIGNATURE

DATE

THIS RESEARCH PROJECT HAS BEEN APPROVED BY THE INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS OF THE UNIVERSITY OF TAMPA (Phone: 813-253-3333)

APPENDIX: N

Participant Number

Q1 "I consider the coordination of care for heart transplant recipients important."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐☐☐☐☐

Q2 "The transplant providers are easily accessible and available to discuss patients."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐☐☐☐☐

Q3 "I receive sufficient resources and guidelines from the transplant center to assist me to co-manage the care of heart transplant recipients."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐☐☐☐☐

Q4 "I feel confident to co-manage the care of heart transplant recipients."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐☐☐☐☐

Q6 "I can recognize the signs and symptoms of cardiac organ rejection."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q7 "I am familiar with the most common applications of frequently prescribed immunosuppression medications."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q8 "I am familiar with common immunosuppressant drug to drug interactions."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q9 "I am familiar with two of the most common viral infections in solid organ transplant recipients."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q10 "I am familiar with cardiac denervation of the transplanted heart."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q11 "I am aware of the need for warm up and cool down exercise techniques for heart transplant recipients."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q12 "I am familiar with the dietary restrictions for heart transplant recipients."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q13 "I am aware of what vaccines to avoid in heart transplant recipients."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐ ☐ ☐ ☐ ☐

Q14 "I know the contact numbers to reach the transplant center and after-hours emergency line for questions or problems that may arise."

1 Strongly Disagree 2 Disagree 3 Undecided 4 Agree 5 Strongly Agree

☐☐☐☐☐