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The Effects of a Survivorship Care Plan on Hospital Readmission Rates in Allogenic Stem Cell Transplant Patients

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Abstract

Stem cell transplants (SCTs) are complicated treatments utilized to treat hematologic malignancies and other disorders, such as multiple myeloma, non-Hodgkin's lymphoma, Hodgkin's lymphoma, acute myeloid leukemia, neuroblastomas, germ cell tumors, amyloidosis, and autoimmune disorders such as systemic lupus erythematosus and systemic sclerosis. The complex care of patients undergoing SCTs place them at high risk for adverse outcomes, including infection, cytomegalovirus, graft vs host disease, secondary new cancers, infertility, and sexual dysfunction (American Cancer Society, 2020). Survivorship care plans (SCPs) are a vital part of the discharge process to educate allogenic SCT patients about post-transplantation care. SCPs are implemented to reduce the risk of common complications and hospital re-admissions in post-SCT patients. The purpose of this project is to use SCPs to reduce 30-day re-admission rates of allogenic SCT patients. A review of literature was conducted to analyze the impact of SCPs on post-transplantation knowledge of preventative measures and common complications. The SCP Questionnaire was created to measure knowledge received from the SCP to highlight the effectiveness of preventative measures and common complications post-transplantation. Kurt Lewin's Change Theory provided the underlying theoretical framework for this project's implementation process. The methodology used was a non-randomized quasi-experiment with purposive sampling of allogenic patients that included a retrospective chart review measuring 30-day readmissions, demographics, and the number of patients discharged post-transplant. The Wilcoxon Signed Ranked Test was utilized to demonstrate statistical significance in 30-day readmission rates through post-transplant knowledge and managed care.

Keywords: allogenic, stem cell transplants, survivorship care plans, common complications

The Effects of a Survivorship Care Plan on Hospital Readmission Rates in Allogenic Stem Cell Transplant Patients

The purpose of this proposal is to detail a DNP Program Development and Evaluation project that aims to reduce common complications and readmission rates of allogenic SCT patients by providing transitional care management utilizing survivorship care plans (SCPs) at an academic facility in Arkansas. This proposal will describe the incidence of readmissions within an acute care setting and outpatient oncology clinic and its significance among the allogenic SCT patients. Background information of SCTs and complications leading to 30-day readmission to the hospital is described. Literature supports the use of SCPs to enhance patient understanding of common complications post-transplantation and decrease complications that lead to 30-day readmissions to the hospital. A non-randomized quasi-experiment design, consisting of pre-and post-intervention groups, will be used to evaluate SCT efficacy. Lastly, project results highlight effectiveness of a SCP on 30-day readmission rates, the extrapolation of results, and methods to promote project sustainability.

Background and Significance

Allogenic Stem Cell Transplantation

The first successful stem cell transplant performed by Dr. E. Donnall in Cooperstown, New York in 1957, paved the way for over one million stem cell transplants executed worldwide (Australian Cancer Research Foundation, 2020). A SCT is a medical procedure in which healthy stem cells are used to replace defective bone marrow of patients with hematologic malignancies such as multiple myeloma, non-Hodgkin's lymphoma, Hodgkin's lymphoma, acute myeloid leukemia, neuroblastomas, germ cell tumors, amyloidosis, and autoimmune disorders including systemic lupus erythematosus and systemic sclerosis (University of Michigan 2020; John Hopkins Medicine, 2020). An allogenic SCT is a complex procedure with the possibility of

complications encompassing bacterial and fungal infections, cytomegalovirus, bleeding, graft vs host disease, interstitial pneumonitis, hepatic sinusoidal obstruction syndrome, graft failure, mucositis, nausea, vomiting, diarrhea, secondary new cancers, infertility, and sexual dysfunction (Bejanyan et al., 2015).

Over the last 50 years, more than one million SCTs have been performed worldwide with more than 50,000 performed annually and approximately 40% of transplants being allogenic SCTs (Hamdeh et al., 2016). According to the Health Resources and Service Administration (2020), a total of 22,863 transplants were reported and performed in United States in 2017, with approximately 60 % being allogenic SCTs (HRSA, 2020 & Levine Cancer Institute, 2017). Males account for 60% of allogenic SCT cases. In the United States, the median ages for patients undergoing allogenic SCTs are 45-70 years old, with Caucasian Americans accounting for 67%, African Americans for 12%, and Hispanics for 11% for this patient population (Be The Match, 2020).

In Arkansas, there is currently only one facility performing adult allogenic SCTs via packed red blood cells (PRBCs) or bone marrow (UAMS, 2020). This center has been performing SCTs since 1993 with the first allogenic transplant program beginning in 2015 (BeTheMatch, 2020). There were 43 allogenic SCTs performed among recipients ages 45-64 years of age in 2015-2017. The one-year survival rate for this facility is 70.2% which is above the national rate of 57.1% (BeTheMatch, 2020).

Acute Myeloid Leukemia (AML). AML patients will be the primary cancer population of focus for the implementation of a SCP during this DNP proposal. AML is a type of fast-growing blood cancer that starts in the bone marrow, and quickly moves into the blood (Leukemia & Lymphoma, 2020). This type of cancer sometimes spreads to other parts of the

body including the lymph nodes, liver, spleen, and central nervous system. AML is one of the most common types of leukemia in older adults and accounts for 1% of all cancers (American Cancer Society, 2020). AML is twice as likely to be diagnosed in men than women with the average age of diagnosis occurring between 45-70 years of age (Tuberville, et al., 2014). According to the American Cancer Society (2020), annually there are approximately 19,000 new cases each year occurring in the United States with approximately 11,000 deaths related to this diagnosis. An allogenic SCT is the most common type of curative treatment option performed among AML patients (Mayo Clinic, 2020).

Human Leukocyte Antigen (HLA). Allogenic patients undergoing SCTs require blood testing to assess human leukocyte antigen (HLA) typing (BeTheMatch, 2020). HLA are proteins found on most cells in the body that recognize which cells belong to the patient and which are foreign (BeTheMatch, 2020). HLA matching represents the most essential barrier among the many elements that impact the outcome of SCTs (Tiercy, 2016). Closely matching the HLA of the donor to that of the SCT recipient allows for the best outcome and lower risk of complications post-transplantation. There are three types of HLA donors which include matched related donor (MRD) where the HLA is identical, matched unrelated donor (MUD) donor where the HLA is unrelated, and haploidentical transplant donor where the HLA is half-matched (American Cancer Society, 2020). MRD is the most preferred donor source due to improved clinical outcomes following transplantation, faster engraftment periods, and decreased cost of hospitalization following an allogenic SCT (Negrin, 2020).

Conditioning Therapy. Prior to an allogenic SCT a patient must undergo conditioning therapy which is composed of chemotherapy, radiation, or both. Conditioning therapy aims to kill any remaining cancer cells in the SCT recipient's body, make room for donor stem cells in

the marrow spaces, and weaken the immune system of the SCT recipient in preparation to receive the donor stem cells (Memorial Sloan Kettering Cancer Center, 2020). The intensity of the conditioning therapy is an important factor and dependent on the patient's condition and the source of stem cells (Atilla, 2017). There are two types of conditioning chemotherapy treatments that consist of myeloablative or nonmyeloablative. Myeloablative SCT conditioning regimen consists of high doses of chemotherapy with or without radiation aiming to kill the cancer of the SCT recipient. This type of regimen is used for patients that are below the age of 65 years of age and have few to no comorbidities (Franciscan Health, 2020). Nonmyeloablative conditioning regimen consists of lower doses of chemotherapy with or without radiation aiming to weaken the immune system allowing the donor stem cells to take over and make a new immune system that will fight the cancer. This type of transplant is reserved for patients with an advanced age of 65 years or older or abnormalities in one of their organ systems that will not allow the use of the myeloablative regimen (Franciscan Health, 2020). According to Atilla (2017), the relapse and survival rates are similar with each of the conditioning therapies.

Transplantation Phases. The allogenic SCT process consists of five phases: conditioning, transplant day to engraftment, engraftment until the day of discharge, early convalescence, and late convalescence (Memorial Sloan Kettering Cancer Center, 2020). Conditioning is phase one in which an allogenic SCT patient is admitted to the hospital and begins conditioning therapy for the next seven days. Phase two consists of transplantation day until engraftment which is when blood count recovery begins, usually during day 10 through 30. Phase three consists of engraftment through the day of discharge (American Cancer Society 2020; Memorial Sloan Kettering Cancer Center, 2020). Early convalescence is phase four in which blood counts are in the recovery period, but the immune system is weakened with a high-

risk for infections occurring from discharge until one-year post-transplantation. Lastly, late convalescence occurs one-year post transplantation and onward in which the immune system is fully recovered (Memorial Sloan Kettering Cancer Center, 2020).

Hospitalization. According to Broder et al. (2017), allogenic SCTs are expensive treatments and are among the top 10 procedures with the highest overall costs associated with hospital inpatient services in the United States. Allogenic SCT hospital cost, increased by approximately 85% from $694 million to $1.3 billion over the time period from 2004 to 2007 (Broder et al., 2017). The median days for hospitalization for an initial allogenic SCT are 31 days. The average cost for a SCT is approximately $203,206 with 75% contributing to early costs (Ballen et al., 2015; Bars, 2018). Allogenic SCT patients who undergo high dose conditioning chemotherapy regimens can have hospitalizations that span from days to months, depending on the type of transplantation, reactions or complications experienced during the hospitalization (Cleveland Clinic, 2019; University of Utah Cancer Institute, 2018). Due to the medical complexities and multiple transition points associated with the SCT treatment, SCT patients have a higher risk for hospital readmissions which can lead to life-threatening issues and prolong recovery (Bejanyan et al., 2015).

According to Roswell Park Cancer Institute (2013), survival rates have drastically improved due to advances in molecular mechanisms, adapted therapeutic conditioning treatments, and the increased number of SCTs performed in patients 65 years of age or older with nonmyeloablative conditioning therapies (Walter et al,2010; D'Souza et.al, 2017). Allogenic SCT related mortality has decreased due to improved supportive care, better strategies to prevent severe infections and the incorporation of nonmyeloablative conditioning protocols (Henig & Zuckerman, 2014). Patients specifically with AML showed a significant survival rate

increase from 85% to 94% with MRD, and 63% to 86% with MUD (Roswell Park Cancer Institute, 2013).

Common complications

The most common complications may occur in the early post-transplant period particularly in the first 30 days (BeTheMatch, 2020). Approximately 80% of SCT patients experience nausea and 45% experience vomiting (Denson et al., 2020). Diarrhea is caused by several distinctive factors with acute GVHD, infections, and mucositis being the most common. Nausea, vomiting, and diarrhea may interfere with nutrition and the ability for the patient to take oral medications (Hamdeh et al., 2016 & Negrin, 2020).

Long term complications after receiving an allogenic SCT include infertility problems and sexual dysfunction. The overwhelming majority of allogenic SCT patients will experience infertility (Virginia Cancer Institute, 2020). Infertility is a late adverse effect occurring after a SCT and greatly affects quality of life in allogenic transplant survivors (Atilla et al.,2016). Sexual dysfunction may be experienced by allogenic SCT patients one year after transplantation with nearly half of men and women experiencing at least one physical sexual dysfunction during that time (Noerskov, et al., 2016). Sexual dysfunction is frequently one of the most common long-term issues following allogenic SCT. Treatments with allogenic SCTs are associated with short-and long-term toxicities affecting sexual function due to the high-dose conditioning regimen and gonadal function changes (Atilla et al., 2016). Long-term complications include decreased libido, vaginal dryness, atrophy, and erectile dysfunction (Andreini, et al., 2017).

Infections. Hospital readmissions due to infections among allogenic SCT patients usually occur within the first 30 days post-transplant (Kaur, et al., 2019; Shain et. al., 2016). According to the American Cancer Society infections are common during the first six weeks

until engraftment has occurred (American Cancer Society, 2020). Infections can be classified as bacterial, viral, and fungal, with bacterial and viral infections being the most common (Kaur, et al., 2019 & Sahin et al., 2016).

Bacterial Infections. Bacterial infections are among the chief complications of allogenic SCT patients with the most frequent causes being bloodstream infections (BSI) and gastrointestinal infection such as *clostridium difficile infection* (CDI) (Balletto & Mikulska, 2015). BSI affects approximately 20%-30% of allogenic SCT recipients with the incidence highest during the pre-engraftment neutropenia phase (Balletto & Mikulska, 2015). CDI frequently occurs in the early post-transplant period with the average time ranging from 3 days to 33 days after transplantation (Kaur, et al., 2019). A study conducted by Balleto & Mikulska (2015), on allogenic SCT patients found that SCT recipients were affected nine times more often with CDI than non-cancerous patients. The allogenic SCT patient population is at highest risk for CDI in the acute care setting affecting 12.5% to 21.3% of allogenic SCT recipients (Kaur, et al., 2019).

Cytomegalovirus infection (CMV). CMV is one of the most critical viral infectious complications related to host immune recovery after an allogenic SCT (Cho et al., 2018). CMV reactivation occurs in approximately 50% to 70% of patients who undergo allogeneic SCTs and may be associated with a 50% mortality rate (Boeckh, 2017). This virus has a profound impact on the immune system causing gastrointestinal disease, pneumonia, retinitis, encephalitis, and end-stage organ disease (Boeckh, 2017; Lin & Liu, 2015). Research conducted by Schelfhout et al. (2019), utilized a United States database to explore the impact of CMV on hospital services following allogenic SCTs. This study found that CMV-related readmissions are profoundly

greater by 30% and accrued higher hospital costs compared to any other 30-day readmission complication.

Graft versus Host Disease (GvHD). GvHD is the most common and serious adverse effect of allogenic SCT patients. It occurs when the transplanted stem cells are identified by the patient's body as a foreign entity and therefore are rejected (Be The Match, 2020). Acute GvHD can develop within the first months after allogenic SCTs and occurs in 20% to 50% of patients undergoing allogenic SCTs (Kaur et al., 2019; BMTinfo, 2020). The main systems affected by GvHD are cardiovascular, pulmonary, integumentary, hepatic, and the gastrointestinal tract (Leukemia & Bone Marrow Transplant Program, 2016). GvHD increases the risk of bacterial and viral infectious complications such as CDI, CMV, and hepatic sinusoidal obstruction syndrome and many patients suffering from GvHD die from these infectious complications (Ghimire, et al., 2017).

Graft failure (GF). Engraftment is key to overall better health and long-term survival and occurs within the first 30 days after transplantation (Hutt, 2017). Graft failure is defined as the lack of hemopoietic stem cells following an allogenic SCT. According to a study conducted by Madan et al. (2015), there was a positive correlation between disease type and graft failure. Allogenic SCT patients with malignant disease had a three times higher incidence of GF than those with non-malignant diseases. Patients with a MUD had a 20% higher probability of GF than any other donor type.

Bleeding. Prolonged severe thrombocytopenia and tissue damage caused by high-dose chemotherapy conditioning regimens lead to increased bleeding tendencies among allogenic SCT patients (Labrador et al., 2015). According to Negrin (2020), bleeding occurs in approximately one quarter of allogenic SCT recipients, with at least one bleeding episode occurring after

transplantation. The most common and life-threatening bleeding problems in allogenic SCT patients occur in the pulmonary and gastrointestinal systems (Labrador et al., 2015).

Acute Pulmonary Complications. Acute pulmonary complications, including interstitial pneumonitis, pneumonia, pulmonary edema, and diffuse alveolar hemorrhage are frequently fatal complications following allogenic SCTs affecting approximately 40-60% of recipients. Acute pulmonary complications contribute to 50% of all deaths in allogenic SCT patients (Pena et al., 2014). Interstitial pneumonitis (IP) is characterized by widespread alveolar injury in the absence of lower respiratory tract infection or fluid overload. IP develops in up to 10% of allogenic SCT patients typically within four months after transplantation (Kaner & Zappetti, 2018; Porter, 2017). IP results from a variety of lung insults, including high-dose chemotherapy or radiation exposure and undiagnosed viral infections (Porter, 2017). The median time of onset for IP is 15-65 days after allogenic SCTs (Porter, 2017). Pneumonia often occurs in 15%-25% of allogenic SCT patients (Balletto & Mikulska, 2015). Pneumonia is depicted as infection that causes inflammation of the air sacs in one or both lungs (MayoClinic, 2020). According to Balletto & Mikulska (2015) the median time of pneumonia after transplantation was 66.5 days with the mortality rate at 46%. Pulmonary edema results from fluid overload, cardiac dysfunction secondary to chemotherapy, radiation therapy, and renal failure (Pena et al., 2014). Pulmonary edema is a noninfectious complication with a peak incidence of 20% in the second and third weeks after allogenic SCTs (Carreras & Cooke, 2018). Diffuse Alveolar Hemorrhage (DAH) is a relevant cause of an acute pulmonary complication occurring in 2%-14% of allogenic SCT patients. DAH has a median onset of 12-15 days within the first month after allogenic SCTs (Pena et al., 2014; Carreras & Cooke, 2018). DAH has similar characteristics to IP as it is caused by acute lung injuries, capillary bleeding induced by

conditioning chemotherapy and radiation, and undiagnosed infections. DAH has a mortality rate of 48% in this patient population (Carreras & Cooke, 2018; Soubani & Pandya, 2015).

Hepatic Sinusoidal Obstruction Syndrome (SOS). SOS, previously termed hepatic veno-occlusive disease (VOD), is characterized by hepatomegaly, right upper quadrant abdominal pain or fullness, jaundice, and ascites (Negrin & Bonis, 2019). Typically occurring in the first two weeks after an allogenic SCT, the incidence of SOS typically ranges from 8% to 14% (Dalle & Giralt, 2016). The onset of SOS can be complicated by multiorgan disease (MOD), characterized by pneumonia, kidney failure, liver damage and encephalopathy (Negrin & Bonis, 2019; Virginia Cancer Institute, 2020). SOS is associated with a mortality rate greater than 80% after allogenic SCTs (Dalle & Giralt, 2015; Negrin & Bonis, 2019;).

Oral Mucositis (OM). OM is part of a larger category of adverse effects of mucosal barrier injury, which can include damage to the entire gastrointestinal mucosa (Chaudhry et al., 2016). Oral mucositis is an inflammatory process of the oral mucosa ranging from mild inflammation presenting as erythematous lesions to extensive ulcerations penetrating the submucosa (Durlacher, et al., 2015). OM begins to develop within two to four days following the completion of the high-dose conditioning therapy and occurs in 80%-100% of patients undergoing allogenic SCTs (Chaudhry et al., 2016; Durlacher, et al., 2015). According to Berger et al. (2018), the average cost of OM related to hospitalization among SCTs was between $10, 558 -$42, 749. Severe OM is considered one of the main determinants of cost in the early transplantation period as it can result in pain, nutritional problems as a result of the inability to eat, and increased risk of infections due to open sores in the mucosa prolonging inpatient hospitalization and increase in hospital costs (Chaudhry et al., 2016; Negrin, 2020; The Oral Cancer Foundation 2020).

Secondary Cancer Occurrence. The success of allogenic SCTs had led to the unfortunate complication of secondary malignancies after receiving high dose conditioning therapy (Negrin, 2020). Risk factors for developing secondary tumors are genetic defects, high dose-irradiation in the conditioning regimen, HLA mismatching of the donor/recipient, and chronic GvHD. B-cell proliferative disorders (BCLD) is a secondary malignancy that has a 1% incidence that can occur in the first year after an allogenic SCT (Camp et al., 2014). According to Majhail et al. (2015), the occurrence of solid tumor cancers such as lung cancer are twice as high in allogenic SCT patients.

30-day Readmission Rates.

The Centers for Medicare and Medicaid Services (CMS) uses 30-day unplanned readmission rates under the Hospital Readmission Reduction Program as a standard to penalize hospitals with high rates of readmissions for certain medical conditions (Dhakal, et al., 2019). In 2015, the Oncology Care Model was initiated by the CMS to help with the increasing health care demands and cost of care for cancer patients. This model aims to provide quality care at the same or lesser cost to susceptible patients such as allogenic SCT recipients with unplanned readmissions due to common post-transplant complications.

Allogenic SCTs are associated with elevated costs related to 30-day readmissions for post-transplantation complications resulting in prolonged hospitalizations and poor survival rates (Broglie et al., 2019; Dhakal et al., 2019). According to Kaur et al. (2019), more than 50% of readmissions among allogenic SCT patients occur within the first 30 days post-transplantation. Patients with blood cancers, such as AML, generally have a higher rate of 30-day readmissions related to transplantation complications such as infections at 43%, gastrointestinal symptoms at 12%, and neutropenic fever at 10% (Dhakal, Giri, & Levin, 2019). In a systematic review by

Shahid et al. (2019), the median time for readmissions post allogenic SCT discharge was 22.5 days with the median length of stay at 12 days. A cohort study of patient data from the United States Nationwide Readmission Database detailed the overall incidence of 30-day readmissions was 24.4% among allogenic SCTs in United States hospitals (Seto et al., 2018; Levin, 2019). Rauenzahn et al. (2015), conducted a cohort study on 91 patients undergoing an allogenic SCT and found that 35 patients, 38%, were readmitted within 30 days of discharge, and were usually affected by infection, fever, and GI issues.

30-day Readmission Risk Factors. According to Bejanyan (2012), risk factors that affect 30-day readmissions, include myeloablative conditioning regimens with high-dose radiation and infections occurring during the allogenic SCT. Springer et al. (2015), asserts that 30-day readmissions are most prevalent among older adults with a median age of 59 years, high rates of infection during inpatient hospitalization, and prolonged initial hospital stay past 30 days after an allogenic SCT. Rauenzahn et al. (2015), found that male gender and a diagnosis of AML versus other cancers were all predictive risk factors for 30-day readmissions.

Survivorship Care Plans (SCPs)

The American Society of Clinical Oncology recommends that every survivor should receive a SCP after allogenic SCTs (Rauenzahn et al., 2017). SCPs are documents that summarize a patient's cancer treatment and provide early follow-up directions and treatment outlines to prevent and manage post-transplant health-related complications (Chaput, 2018; Memorial Sloan Kettering Cancer Center, 2020). The urgency to incorporate survivorship follow-up care by 2025 is important as the requirement for oncology services is expected to outweigh the supply of cancer healthcare providers (Chaput, 2018). These documents are pivotal

tools to aid in transition of care and facilitate communication between specialty providers and primary care providers (Majhail et al., 2019; Oancea & Cheruvu, 2016).

Barriers to SCP Dissemination. Traditionally, primary care providers have been uncomfortable managing the care of the increasing number of cancer survivors due to the lack of awareness for how to identify and treat complications (Jacobsen et a., 2018). Rooij et al. (2017) specified healthcare providers noticed poor prognosis was the key barrier with communicating health concerns among allogenic SCT patients (Rooij et al., 2017). According to Birken et al. (2018), concluded further barriers involved a lack of coordination among healthcare providers resulting in omission of recommended services or a lengthy SCP with duplication of information (Birken et al., 2018). Mayer et al. (2015), determined the shortage of oncology providers resulted in providers not completing and delivering the SCPs post-treatment. In addition, this study found the lack of a standardized format led to excessive time spent preparing SCPs. Selove et al. (2016), deduced that poor support for survivors physical and emotional needs attributed to major factors for SCP dissemination in post-treatment care.

Finally, socioeconomic status and age are other factors noted as contributable obstacles to unsuccessful implementation of SCPs. Older adults tend to have a decreased ability to recall information and people with lower socioeconomic status may have decreased health knowledge and information delivery (Rooij, 2017). Klemanski et al. (2016), concluded that a shortage of funding, inadequate access to care, and decreased information on utilizing reimbursement opportunities for SCPs were all barriers to implementation.

Inconsistencies to SCP Dissemination

In clinical practice the implementation and dissemination of SCPs have been low to inconsistent with only 10%-20% of oncologists providing a SCP after transplantation (Rooij et

al., 2017; Klemanski, Browning, & Kue, 2016). According to Klemanski et al. (2016), additional inconsistencies include the absence of reimbursement, formatting consensus, cost of documentation, and sustainability. Many transplant facilities commonly underuse SCPs because of inadequate resources or the shortage of evidence regarding the effectiveness on patient outcomes (Majhail et al., 2019). According to Klemanski et al. (2016), the duties for composing the survivor care plan were very time consuming for one person. Jacobsen et al. (2016), reported other inconsistencies included patients being unsure of the benefits from receiving a SCP, the design of a SCP for diverse populations, and people with low health knowledge.

Financial Implications of SCT

Allogenic SCT patients sometime experience financial problems associated with long-term recovery and complications after SCTs (Denzen et al., 2016). According to Broder et al. (2017), the median cost for conditioning chemotherapy and 30-day readmission was $289, 283. A retrospective survey among allogenic SCT patients found that 73% reported their sickness and transplantation had a financial impact on their household with 47% reporting household income was decreased by 50% (Khera et al., 2015). Many patients must relocate temporarily to be near a SCT facility and must stay several weeks to months after transplantation (Abel et al., 2016). This causes problems with transportation to appointments, travel expenses, and extended time away from work. Financial difficulties can contribute to poor treatment adherence, higher levels of stress, and poor overall health particularly among post allogenic SCT patients (Abet et al., 2016).

In conclusion, common infectious complications after an allogenic SCT necessitate readmissions within the first 30 days post transplantation (Cho et al., 2018). Allogenic cancer survivors continue to be at risk for late complications that can cause considerable sickness and

contribute to psychosocial and financial strains (Oancea & Cheruvu, 2016). Utilizing SCPs may improve surveillance and coordination of care among healthcare providers and identify common complications post transplantation, resulting in a reduction in 30-day readmissions.

Problem Statement

The problem statement for this DNP program development and evaluation project is that allogenic SCT patients often experience hospital readmission rates within 30-days of discharge due to complications post-transplantation. Providing allogenic SCT recipients with information on preventative measures and the signs and symptoms of complications prior to hospital discharge may improve patient reporting of adverse events. It is expected that these enhanced understanding combined with close follow-up appointments and the frequent use of a SCP questionnaire will increase patient familiarity of post-transplant care leading to reduced 30-day readmission rates for allogenic SCT patients.

Purpose Statement

The purpose of this DNP program development and evaluation project is to decrease hospital readmission rates that occur during the first 30 days after transplantation in allogenic SCT patients at an academic hospital. Patients will gain evidence-based education on preventative measures and common complications through the initiation of SCPs. The SCP Questionnaire will be utilized during the discharge process and weekly in the outpatient clinic follow-up visit to help improve the gap in care for common complications after transplantation.

PICOT Question

(P) In allogenic SCT patients, (I) how does the addition of a SCP, (C) compared to current discharge practice, (O) effect 30-day readmission rates (T) within 10 weeks?

Needs Assessment of an Inpatient Facility in Pulaski County, Arkansas

Project Objectives

The objective of this needs assessment was to ascertain the gap in care, resulting in 30-day readmission rates among allogenic SCT patients. A gap in care was identified by several key stakeholders of an oncology team at an inpatient facility in Arkansas. These key stakeholders wanted to identify barriers and conjure solutions to help improve patient health outcomes.

Participants

The targeted contributors of this needs assessment were chosen as key stakeholders on implementing a practice change among allogenic SCT patients. The head of the stem cell transplant department is an essential component and overseer for this project. The clinical service manager of the oncology unit, an Advanced Practice Registered Nurse (APRN) will help with implementing change in the unit. The Director of Nursing will serve as resource and is a key stakeholder for this project. Additional participants include the inpatient oncology staff and oncologists. All stakeholders have provided insight on the gaps of care for allogenic SCT patients and serve as site champions encouraging the implementation of to reduce common complications and 30-day readmission rates post-transplantation.

Rationale of the Needs Assessment

Many patients at this academic facility are discharged with little education regarding post-transplantation care after an allogenic SCT. Identifying gaps in care is crucial to address in this population as it could decrease 30-day hospital readmissions and establish preventative measures to improve patient knowledge of common post-transplant complications. The result of the Needs Assessment will direct attention to the specific needs of the allogenic SCT population

at this academic hospital, identifying gaps in current processes that result in readmission to the hospital within 30 days.

Data Collection Tool

The Bone Marrow Needs Assessment questionnaire was given to the eight key stakeholders to understand the needs that should be met when implementing this practice change to oncology patients. The main objectives were to assess staff readiness and gather concepts and ideas for a practice change. Eight open-ended questions were created and presented to the key stakeholders with an open comment section left for any additional commentary. See *Appendix K* for Needs Assessment survey.

Sample, Sample Size, and Sample Procedure

Convenience sampling was used to select the participants for this Needs assessment. Participants were chosen based upon their degree of involvement in the care of oncology patients. A total of eight interviews occurred, with eight-open-ended questions given to the nursing staff and key stakeholders.

Implementation and Data Analysis

Each interview was conducted in a quiet setting in the unit's conference room at the hospital, for approximately 15-20 minutes on the afternoon of June 24, 2020. Clarification was provided for all questions and promotion of ideas were offered to interviewers. Key findings from the questionnaire included poor discharge processes, a lack of resources, workload demand, poor patient education, and recurrent readmissions among allogenic SCT patients. All the key stakeholders agreed that readmissions were a major concern and that education is not properly provided to the patients and families. Many staff members expressed key barriers such as failure to recognize high-risk patients, poor communication among staff, high workload demand, and

ineffective discharge planning. All of the participants were willing and ready to participate in the project. Support and advice were received from the key stakeholders during their interviews. Many staff members recommended to employ a designated discharge nurse to ensure that every patient was discharged appropriately and received patient education.

Through the use of the gathered information, contributing factors identified as gaps of care were patient education, discharge processes, and readmissions at this inpatient facility. The data collected will be used to address all concerns to establish a practice change for at this inpatient facility. After evaluation of the Needs Assessment results, the project team will meet to discuss health outcomes and possible barriers to change implementation.

Aim and Objectives

The aim of this DNP project was to utilize survivorship care plans for allogenic SCT patients prior to hospital discharge in order to reduce 30-day readmission rates. There was not a discharge education protocol in place to review common complications and preventative measures for allogenic SCT patients. Following protocol implementation, this project expected to reduce readmissions rates among allogenic patients by 50% by March 2021. The objectives were as followed:

- Improve patient understanding regarding common post-transplant complications and preventative measures by 75% through the use of the SCP Questionnaire
- Distribute survivorship care plans to 50% of allogenic SCT patients prior to discharge from the hospital
- During the initial outpatient follow-up visits, 100% of post allogenic SCT patient's education will be evaluated utilizing the SCPs with a questionnaire followed by repeating the questionnaire weekly for three weeks.

- During the outpatient follow-up visits, 75% of allogenic SCT patients will complete the full 4 weeks of post-discharge SCP Questionnaires.
- Decrease 30-day readmission rates of allogenic SCT patients by 50%

Review of Literature

In order to gather background information about allogenic SCT patients and SCPs a review of literature was conducted to find evidence-based information and research articles using the key words *allogenic, stem cell transplants, bone marrow transplant, survivor care plans, common complications, infections, and graft versus host disease.* A detailed search strategy was conducted with Dr. Tony Stankus utilizing the following databases: CINAHL, PubMed, Google Scholar, Web of Science, Bone Marrow Donor Program, and the American Cancer Society. The search was limited to peer-reviewed articles and journals written between 2015-2020. Inclusion criteria were studies that demonstrated impact of 30-day readmission rates, infection, bleeding, graft vs host disease, interstitial pneumonitis, hepatic veno-occulsive disease, graft failure, mucositis, nausea, vomiting, organ damage, relapse, secondary new cancers, abnormal growth of lymphatic tissue, infertility, hormone changes in the thyroid and pituitary glands, cataracts, and sexual dysfunction (American Cancer Society, 2020). Exclusion criteria included research more than five years old, children less than eighteen and research that was not written in English. Twenty articles were accepted after inclusion and exclusion criteria was applied. See *Appendix C* for EMSON Evidence Table.

Survivorship Care Plans

Discharged patients after an allogenic SCT can experience a difficult transition as they adjust to the new changes and expectations of their post-transplant life (Mars, 2018). SCPs are

tools that improve communication between healthcare providers and patients and can ease transitions from the acute care setting to the outpatient setting (Donohue et al., 2017). A SCP has the ability to decrease distress by increasing the patient's understanding of common complications and evidence-based preventative measures (Denzen et al., 2019). In 2020, The American College of Surgeons' Commission on Cancer (ACos Coc) revised their 2016 accreditation standards requiring all cancer programs to deliver a SCP to 50% of survivors to now only strongly recommending a SCP post-transplantation (Christensen, Agee, & Bellomo, 2020). The ACoc Coc's amendment to the scope of standards in 2016 was due to only 21% of cancer institutions meeting the accreditation standards.

SCP Components

A SCP is a detailed documentation given to a cancer survivor prior to discharge that is tailored to included specific information pertinent to the patient's type of cancer and individualized treatment plan (National Cancer Institute, 2020). A SCP includes information about the cancer diagnosis, conditioning regimen treatment with specific drug names, number of dosages, number of cycles, along with radiation type, number of dosages, and surgical procedures performed. The SCP follow-up plan should contain specific recommendations for ongoing care that include a detailed schedule for oncology appointments, surveillance testing, and identifying and managing long-term and late effects. Health promotional strategies may also be included to provide information on comprehensive care for each body system, central catheter care, smoking cessation, alcohol and dietary modifications, and regular weight-bearing exercises. The oncology providers and the treatment facility's contact information should be included in the documentation. Lastly, Rooji et al. (2017), suggested including information to help meet the emotional, social, legal, and financial needs of allogenic SCT survivors.

Survivors Perception

The primary goals of a SCP are to improve health outcomes and enhance patient knowledge of preventative measures and common post-transplant complications (American Cancer Society, 2020). Seventy percent of cancer survivors reported expansion of knowledge with the ability to manage their condition and side effects when an oncology healthcare provider verbally explained their follow-up care and provided a copy of their SCP after their treatment (Kenzik et al., 2016; Morken et al., 2019). According to Morken et al. (2019), 93% of survivors reported receiving a paper copy was more effective than electronic copies at the end of their transplantation and served as a reminder of follow-up appointments and provided education on future complications (Morken, et al., 2019). Majhail et al. (2019), described 60% of survivors reported satisfaction with their SCP and stated improved knowledge and understanding about their cancer, treatment regimens, and follow-up care. According to Phillips et al. (2020), and Brant et al. (2016), 70% of survivors were able to make better health care decisions which improved their follow-up compliance and care coordination with their healthcare providers.

Provider Perception

Seventy percent of healthcare providers in a Canadian Wellness Cancer program indicated that SCPs were helpful with increasing their own understanding of treatments given and transplantation side effects (Caput, 2018). Kanagasundram & Amini, (2019), found that 86% of healthcare providers reported that SCPs integrated continuation of health, physical, and physiological routines (Kanagasundram & Amini, 2019). According to Garcia et al. (2016), 70% of clinicians were highly satisfied with the use of SCPs and shared positive attitudes towards their usage and effectiveness on improved patient care (Brant et al., 2016; Garcia et al., 2016). A study conducted by Blanch-Hartigan et al. (2015), found that 65% of healthcare providers

reported they were more susceptible to discuss survivor care issues with patients that had received SCPs when compared to those who did not. According to Stricker (2019), the use of SCPs demonstrated improved provider knowledge of cancer disease, better surveillance among healthcare providers, and better quality and coordination of care.

Implementation of SCP

As survivorship rates continue to increase and institutions aim to overcome impediments to SCP compliance, it is valuable to work as a multidisciplinary team and employ the necessary tools to ensure the distribution of SCPs (NextPath, 2020). Implementation of SCPs involves organizational resources, adequate electronic systems, standardized templates, and in-service training for SCP usage (Rooij, et al., 2017). In a systematic review performed by Birken et al. (2018), several cancer programs successfully implemented a SCP plan of action by proactively developing dedicated champions. This study also suggested the designated champions should be responsible for generating, completing, and providing the SCP to patients at the end of transplantation. Mayers et al. (2015) found that efficient implementation of SCPs can be generated by a semi-automated system that recognizes the date the patient's treatment ends, efficient times to deliver the SCP at discharge, and create functions that could track usage. The Centers for Disease Control and Prevention (CDC) has a Comprehensive Control Center designed to support oncology providers with navigating through barriers with SCP implementation. Oncologists are able to utilize the Comprehensive Control Center to receive help with creating and evaluating SCPs in efforts to improve patient knowledge and outcomes on common complications post-transplantation (CDC, 2019).

Effects of SCP

According to Morkel et al. (2019), implementing SCPs into the electronic health record (EHR), reduces time and resources needed to compile a SCP. SCPs can offer information on financial resources which could reduce the likelihood of patients abandoning follow-up appointments and financial distress among cancer patients (Thom et al., 2019). Coughlin & Dean (2019), concluded financial material placed in the SCP could help provide guidance on how to access institution-specific resources, public funds, and other charitable assistance programs (Coughlin & Dean, 2019).

Prevention Strategies to Reduce 30-day Readmissions

Antibiotic and Antifungal Therapy

Infectious complications remain a clinical challenge for allogenic SCT patients especially during the early phase after transplantation (Ullmann, 2016). The use of prophylactic antibiotics during the pre-engraftment phase has been the gold standard of care during hospitalization over the past 20 years (Horton et al, 2019). According to Aoun (2015), empiric therapy is vital as the early detection of invasive infections is challenging and mortality is increased by 30% when therapy is delayed. Antibiotic and antifungal prophylaxis therapy has demonstrated its ability to reduce the incidence of severe complications resulting in readmissions by 5.6%. Lastly, Busca & Pagano (2016), found prophylactic use of antifungal therapy medications reduced the risk of infection by 4.1%.

Follow-Up Appointments

Follow-up appointments after the discharge process are an essential part of improving patient outcomes and reducing 30-day readmission rates. Follow-up appointments allow for

evaluation of diagnosis, adjusting and reconciling medications, and catching new incidental complications after an allogenic SCT (Rockney & Dressler, 2019). In a systematic study conducted by O'Marcondes et al. (2019), 30-day readmissions were reduced by 2% with prompt follow-up appointments within a week of discharge. According to Jackson et al. (2015), follow-up appointments within 14 days after discharge was associated with a 19.1% reduction in 30-day readmissions among high-risk allogenic SCT recipients. A study conducted by Mars (2018), demonstrated that post-discharge follow-up telephone appointments within 72 hours are likewise effective at reducing 30-day readmissions by 10% allowing healthcare providers to monitor for common complications post-transplantation.

Post-Discharge Education

Patients with allogenic SCTs have unique health care needs and discharge educational materials must prepare patients to safely manage their health care and medical complications at home. Educational preparation throughout the patient's hospitalization and especially at discharge has the potential to reduce 30-day readmissions by 15% (Ridgeway, 2018). Healthcare checklists have produced dramatic gains in patient safety and ensures that each healthcare provider is presenting the same content to each patient and post-discharge information is provided. According to Ali et al. (2018), post-discharge education should include information about medications, infections and prevention tips, healthy eating, and signs and symptoms to immediately report to the oncology healthcare team. According to Ridgeway (2018) post-discharge education should include tips on oral hygiene, skin management, venous access device care, outpatient clinic routine, dehydration prevention, signs and symptoms to report, and medication review. Both studies concluded that post-discharge education would provide

essential information needed to continue safe and effective methods of care at home to post-allogenic SCT patients (Ali et al., (2018); Ridgeway, (2018).

Survey Tools

The European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire (EORTC-QLQ) was developed in 1996 by The European Organization for the Research and Treatment of Cancer to assess quality of life in patients with various types of cancer (Radisic, 2020). The EORTCQ-LQL 25 is an instrument used to assess perception and satisfaction of cancer patients in regard to health-related quality of life information (Pinto et al., 2014). This questionnaire consists of 22-item Likert-style questions with two open response questions. The Likert scale can be used to measure the relative intensity of responses along a range. The Likert-style questions utilize a 1 to 4 scale, with 1 rating as not at all, and with 4 rating as very much. These items assess the cancer recipient's perception of characteristics about their disease and treatment, and the satisfaction of the information received. The EORTCQ-LQL 25 survey offered cancer patient the opportunity to explain if more or less information should be received and the type of information that should be included in the questionnaire.

According to Asadi-Lari et al. (2017) this questionnaire is a reliable and self-reported instrument that can be used in any cross-cultural observation or intervention study. Asadi-Lari et al. (2015) explained this questionnaire showed a relevancy and clarity at 86% and an overall appropriateness at 94% with measuring the perception of information in cancer patients. This questionnaire has been tested in large international and multicultural studies and is reliable and applicable in cancer patients at different phases. The EORTCQ-LQL 25 questionnaire can be applied in the daily clinical practice among all oncology patients with any disease type and

treatment stage (Arraras, et al., 2016). The validity of the EORTCQ-LQL25 questionnaire can be useful for baseline assessment and intervention measures to accommodate information availability for patients upon discharge (Pinto, et al., 2015).

The Survivorship Care Plan (SCP) Questionnaire is an independently designed questionnaire strictly used for the purpose of this project. The design of this questionnaire was based on a study conducted by Hennell et al. (2004) on the development and validation of a Patient Knowledge Questionnaire (PKA) for patients with early rheumatoid arthritis. The SCP Questionnaire was developed to measure allogenic SCT patient's knowledge on the education provided at discharge on the components of their SCP. The SCP Questionnaire is comprised of eight multichoice questions with a choice of four responses. Specifics areas from the components of the SCP were identified for testing in the questionnaire which included: signs and symptoms, drug therapy, monitoring, and preventative measures. Questions were written without jargon or difficult terminology to aid in understanding (Hennell et al.,2004). In order to prevent the possibility of certain responses consistently selected in error, questions were worded in various ways (Hennell et al.,2004). This questionnaire will be used to assess knowledge attainment before and after receiving a SCP.

In conclusion, the proposed DNP program development and evaluation project had a strong foundation of evidence to support the need for the implementation of a SCP based on the literature review. The review of literature highlighted the importance of compliance with the implementation of a SCP to provide post-transplantation information on common complications and preventative measures in the efforts to reduce 30-day readmission rates among allogenic SCT patients. The evidence supported the need to use the EORTCQ-25 and SCP Questionnaire

in order to assess knowledge and information received from the SCP and further accentuated the need for the proposed DNP project.

Theoretical Framework

Lewin's Change Theory

This DNP program development and evaluation project was designed to assess the effects of a SCP on 30-day hospital readmission rates for allogenic SCT patients. The Change Theory created by Lewin used the stage model with the founding three elements of unfreezing, change, and refreezing (Petiprin, 2016). This theory best represented the guiding framework for this program and development project as it provided a balance of driving forces and restraining forces to guide implementation and created sustainable changes in this organizations. See Appendix D.

Change Theory Concepts

The change theory had three major concepts analyzed to address possible barriers and resistance to change: driving forces, restraining forces, and equilibrium (Petiprin, 2016). Force field analysis, a strategic tool used to understand the necessary components for change, listed benefits and challenges associated with the project's innovation (Change Management Coach, 2015). This theory asserted that leadership roles have a strong presence in order to sustain a positive change (Barrow et al., 2020). Involving stakeholders in change was a critical aspect of planning for change, as it allowed for problem identification, goal setting, and action planning which increased staff buy-in. The leading benefit from having stakeholders involved was the ability to sustain change by cultivating an atmosphere of trust, open communication, and collaborative participation (Weatherston, 2016).

Driving Forces. Driving forces were those that pushed in a direction and caused a change to occur (Petiprin, 2016). The change process was effective when commitment from the key stakeholders was encouraged and a supportive environment was created to promote change. One of the major driving forces for this project expressed by stakeholders was the need to reduce 30-day readmissions among allogenic SCT patients. Key stakeholders expressed their readiness to participate in this project and were willing to help promote an environment that was conducive to change and sustainability of this project.

Restraining Forces. Restraining forces were forces that countered driving forces and hindered change because they pushed change in the opposite direction (Connelly, 2017). Staff members communicated their readiness to help promote an improved environment. Many staff members expressed this change was a necessitated component that helped to promote better health outcomes for the allogenic SCT population. Many staff members expressed their eagerness to help promote change by displayed excitement and welcomed a new adjustment. There was some resistance unknown, as with any change. Resistance occurred among staff due to loss of power, fear the unknown, failure, and a feeling of mistrust (Mdletye et al., 2015). Further restraining forces among staff included proving change was not needed or poor timing for change. This PI promoted reassurance to staff members, communicated change effectively, implemented change in several steps, and provided support to those who were resistant to face those unexpected challenges,

Equilibrium. Equilibrium is a key concept of modern science (Scandizzo, 2019). Equilibrium can be raised or lowered by changes that occur between the driving and restraining forces (Nursing Theories, 2017). Complex adaptive systems require equilibrium in order to maintain and survive an ever-changing environment (Wojeciechowski et al., 2016). There were

currently no interventions put in place to help reduce 30-day readmission rates of discharged allogenic SCT patients, so the implementation of this project improved health care outcomes. The results of this DNP project were used to establish and support the incorporation of this new practice change. The key stakeholders' involvement in the planning and implementation phase were essential to building a strong foundation to sustain the change after the project implementation ended. Once the results of the program were analyzed, the key stakeholders were the principal constituents that devised a plan for sustainability (Wojeciechowski et al., 2016).

Lewin's Change Theory Stages

Stage One: Unfreezing. This was the first stage in which understanding change is needed to help improve 30-day readmission rates (Barrow et al., 2020). A needs assessment was conducted to determine barriers for readmissions. Key stakeholders and oncology registered nurses (RNs) expressed the need to implement a project that addressed readmission complications and preventative measures. Through the data collected from the needs assessment a SCP was deemed to be a resourceful tool that could be given to each patient and families to assist in increasing knowledge and understanding for preventative measures and complications post-transplantation.

This principle investigator (PI) provided a training PowerPoint presentation during a scheduled meeting in October 2020 to inpatient oncology RNs and key stakeholders. This PowerPoint presentation included the SCP components, SCP Questionnaire, and the aim and objectives for this project in the efforts to reduce readmissions. Inpatient in-service meetings occurred during the week of implementation of this project to aid as refresher sessions and

provided script training to each oncology RN to follow when dispersing the SCP Questionnaire and SCP material during discharge.

A prearranged meeting in October 2020 was conducted in the outpatient oncology clinic that included the transplant coordinator, RNs, advanced practice registered nurses (APRNs), and oncologist. This meeting consisted of a PowerPoint presentation that described the modifications occurring inpatient, the SCP components, and the SCP Questionnaire. A copy of the SCP and a SCP Questionnaire was given to each of the APRNs and oncology doctors to familiarize themselves and review the components of each document.

This PI reviewed the goals with the APRNs and oncologist to emphasize how the SCP and follow-up SCP Questionnaire would potentially aid in improving patient knowledge and understanding on preventative measures and complications post-transplantation. This PI requested that each of the APRNs and oncologists distribute the EORTC-QLQ 25 at the initial visit only and redistribute the SCP Questionnaire during the initial visit and weekly for two weeks with each discharged allogenic SCT patients. This PI was present in the outpatient clinic to monitor the dispersal of both the EORTC-QLQ 25 and the SCP Questionnaire during the first two weeks to ensure implementation was transitioning correctly.

This PI was available to both the inpatient and outpatient sites to help with answering questions and clarify the process occurring. Lastly, stakeholders and trained oncology RNs were able to provide input during this stage to address any resistance or developments that needed to occur prior to implementing the change.

Stage Two: Change. The method of initiating the change process occurred during stage two which was for implementing new practices. Project implementation began in January 2021 and continued through March 2021. An initial SCP Questionnaire assessed the preliminary

patient understanding of preventative measures and complications distributed by this PI or the trained oncology RN prior to the patient receiving a SCP. Afterwards, a SCP, was reviewed with the patient and family by this PI or a trained oncology RN. This PI was available to evaluate the inpatient oncology RN's discharge education. A biweekly contest in the inpatient setting was promoted to remind and ensure oncology RNs about implementation of this new change.

During the initial outpatient clinic visit the EORTCQ-LQL 25 was dispersed by this PI, or trained APRN to assess the patient's perception and satisfaction with information received in regard to their cancer treatment and care. The redistribution of the SCP Questionnaire was given during the first initial visit and weekly for two weeks, by this PI, and a trained outpatient APRN, to assess the patient's retention of knowledge from the components of the SCP. This PI was available to aid with incorporating the EORTCQ-LQL 25 and the SCP Questionnaire during the initial visit with the APRNs. This PI monitored the distribution of the EORTCQ-LQL 25 and follow-up SCP Questionnaires by the APRNs. The SCP Questionnaire were collected and evaluated to assess if there was a differentiation of scores from discharge, the initial outpatient visit, and the two weekly visits.

Through the use of the plan-do-study-act (PDSA) cycle, this process was evaluated to help correct deviations seen with the implementation process. The PDSA was used to evaluate staff process, scheduling of appointments, patient calls received and returned, patients' attendance to appointments, and weekly missed appointments by patients. Data was collected and evaluated on the allogenic SCT patient's willingness to accept the SCP at discharge and willingness to participate with the EORTCQ-LQL 25 and follow-up SCP Questionnaire in the outpatient setting. This PI tracked complications and necessary interventions that occurred during the first 30-days post-transplantation. The length of stay was followed to evaluate how

long the patient was hospitalized related to the readmitting complication. This information was dispersed weekly to both the inpatient setting and outpatient clinic to show the percentage of readmissions occurring during this project.

Support and encouragement were provided to the staff by this PI regarding how the change was impacting patient care and outcomes. This PI continued to aid and educate those who were resistant by communicating the need for change and the benefits of decreasing readmissions for this patient population. This PI promoted engagement from the key stakeholders by emphasizing their presence and support during the implementation stage to help encourage those who are resistant.

Stage Three: Refreezing. In this final stage of refreezing in Lewin's Change Theory brought about establishing a new status quo (Barrow et al., 2020). Leadership key stakeholders were critical for this stage to help sustain and reinforce this new change in everyday practice. The efforts of this program would demonstrate the benefits of SCPs and the SCP Questionnaire on improving patient knowledge of post-transplant complications and preventative measures. The results of the project will be disseminated to the key stakeholders, in hopes of gaining support to implement a permanent discharge policy with SCPs.

Summary

Lewin's Change Theory was used to implement a program development and evaluation project to promote the distribution of SCPs prior to discharge and a follow-up SCP Questionnaire in the outpatient oncology clinic to allogenic SCT patients. It was expected that patient knowledge would improve by providing education on common complications and preventative measures with the SCP and follow-up SCP Questionnaire. Thirty-day readmission rates would

be decreased, and the sustainability of the program would continue after the implementation phase.

Methodology

Project Description

Utilizing a SCP was a logical approach to educate patients prior to discharge and was expected to decrease 30-day readmission rates among allogenic SCT recipients. The project took place in the inpatient bone marrow unit and outpatient oncology clinic at an academic hospital in Arkansas. The project included a retrospective chart review to determine diagnoses for 30-day readmissions among allogenic SCT patients. Staff participation were assessed by analyzing the charts and ensuring that all allogenic SCT patients received a SCP.

Project Design

The proposed DNP project was aimed to decrease 30-day readmissions among allogenic SCT patients by utilizing a SCP. The approach of this project was a quasi-experiment design with a pre-intervention group and a post-intervention group that were non-randomized. The pre-intervention group consisted of patients that were discharged prior to the implementation of the new SCP program. The post-intervention group included patients that received SCPs at discharge and the follow-up SCP Questionnaire during outpatient visits. The outcomes measured included 30-day readmissions diagnoses, demographic data, and the number of patients discharged after allogenic SCTs, and education retention.

Setting

The setting for this program and evaluation project took place at an urban academic hospital in Arkansas. This facility housed 450 acute care beds, with more than 10,000 employees in 73 of the 75 counties in Arkansas (UAMS, 2020). This hospital was the only

Level One adult trauma center in Arkansas. This was the only adult allogenic SCT program for the state of Arkansas. The outpatient oncology clinic was the second setting utilized for this project. The outpatient oncology clinic was also a part of the urban academic facility located in Arkansas and managed over 300 patients. The clinic was composed of seven medical hematologists/oncologists that treated blood-related diseases, sickle cell disease, thalassemia, leukemias and lymphomas, as well as cancers of other organs (UAMS, 2020).

Study Population

The study population for this project consisted of all patients undergoing allogenic SCTs during the 10-week implementation period. All participating allogenic SCT patients received a SCP prior to discharge. Family members and caregivers were involved for mentally incompetent and non-English patients undergoing allogenic SCTs.

Study Interventions

The trained oncology RNs reviewed the SCP with patients in the inpatient setting prior to discharge. The trained APRNs redistributed and conducted follow-up SCP Questionnaires during the first outpatient visit and once weekly for two weeks in the outpatient clinic. The European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire 25 (EORTCQ-QLQ25) was administered during the initial outpatient oncology clinic visit to assess patient satisfaction and perception of their cancer treatment and care.

Pre-Implementation Phase. This PI introduced this upcoming DNP program and development project during a daily in-service meeting in October 2020, to inpatient oncology RN's and key stakeholders. A video PowerPoint was recorded to highlight the important components from the in-service to disperse via email to those who were unable to attend the in-serve. The in-service meeting prepared them for the process change that would occur over the

next three months with this program. This PI met with the outpatient oncology clinic coordinator to schedule a time and date for the month of October that was convenient for the APRNs to discuss the changes occurring on the inpatient bone marrow

The SCP was constructed by this PI to provide education on evidence-based preventative measures and materials on common complications. This PI met with the key stakeholders to review and approve the components of the SCP prior to the implementation of this DNP project. The creation of a SCP Questionnaire was created during this stage with the help of this PI's committee chairperson. This questionnaire was constructed with questions that assessed knowledge and information contained in the SCP. A consent transcript was created by this PI to serve as a guideline for trained oncology RNs to use during the admission process. The scripted consent transcript detailed the aim and objectives of this project in preparation of obtaining a signed consent from allogenic SCT patients participating in this project. This PI also constructed a discharge scripted transcript as a reference for the delivery of the SCP Questionnaire and the SCP during the discharge process. Lastly, this PI met the last week in October 2020 with an academic institution statistical graduate student to help with formulating the excel codebook. The codebook consisted of information to help collect data from the chart reviews, demographic information, and compile project results.

Implementation Phase. The PI monitored the SCP distribution of the trained oncology nurses' practice during this stage and provided weekly updates on the implementation rates and detection of potential complications that were identified using the SCP. This PI provided a chart to aid in visual data on the percentage of SCPs dispersed each week by those implementing SCPs. Through the use of the PDSA cycle, the PI monitored discrepancies and intervened when necessary to keep the program on track. Readmissions and diagnosis were monitored and

collected weekly for the allogenic SCT patients. Patient knowledge was monitored to assess if improvements were made weekly with the redistribution of the SCP Questionnaires in the outpatient clinic.

Post-Implementation Phase. This information was used to analyze and evaluate if 30-day readmissions rates among allogenic SCT patients were decreased with the implementation of this program development project. Data showed the negative correlation between an increase in patient knowledge of preventative measures through SCPs and a decrease in 30-day readmissions rates. The results of the project were disseminated to the facility's key stakeholders, the inpatient bone marrow unit, the outpatient oncology clinic, the academic facility, and the Eleanor Mann School of Nursing.

Study Measures

Conceptual Definitions. The conceptual definition of the term *30-day readmission* referred to a discharge that occurs within 30 days of initial admission. The conceptual definition of the term *readmission* referred to a discharge that occurs after a preliminary admission. The conceptual definition of the term *post-transplantation patient knowledge* referred to a measure of patient understanding of preventative measures and potential complications post-discharge.

Operational Definitions. The operational definition of the term *30-day readmission* was described as a discharge that occurred within 30 days of initial admission for an allogenic SCT. Readmissions were measured by conducting chart reviews to determine the number of patients readmitted for common complications. The operational definition of the term *post-transplantation patient knowledge* was information retained from the SCP during the discharge process such as preventative measures and common complications. This information was

analyzed using the SCP Questionnaire an instrument used to evaluate patient retention of information from the SCP

Outcome Measures

The outcomes measures for this DNP program and development project were used to evaluate the effect of the executed program and development change (MeInky & Fineout-Overhold, 2015). A retrospective chart review was performed at the clinical site to gather data on the number of patients with complications within 30 days post-discharge and the differentiation of diagnoses. Outcome measures accessed the effect of the SCP on patient health outcomes. The number of patients in the bone marrow transplant unit and the number of those who were discharged were monitored. The number of SCPs reviewed at discharge were measured. Patients completed the SCP Questionnaire prior to receiving the SCP and that score was entered into the codebook.

Data was collected on the interventions in the outpatient clinic to prevent deterioration after complications were identified. Chart reviews were used to determine if the protocol implementation led to a decrease in 30-day readmissions through the use of the SCPs. The chart review assessed demographic data, including gender, age, socioeconomic level, education level, insurance, marital status: number of readmissions; readmission diagnoses; complications treated; length of stay with readmission. Additional measures included the number of attended visits per patients, the SCP Questionnaire score at initial visit and once weekly for two weeks, number of telephone calls from patients who had questions about recovery, number of missed appointments, number of patients with complications within 30 days of discharge, differentiation of complication diagnoses, and interventions implemented to prevent readmission. If patients did not keep their outpatient oncology appointment, this PI would call them to review the SCP

Questionnaire with them. Outcomes measures compared pre-and post-implementation information to conclude the project's impact.

Process Measures

There was no current practice benchmark at this facility with SCPs; however, The American College of Surgeons' Commission on Cancer recommended that 50% or more SCPs be distributed, so the process measures for this project was to achieve 50% of SCP distribution at the time of discharge (Bell et al., 2017). Process compliance was monitored weekly by this PI. Other process measures included the percentage of patients who completed the SCP Questionnaire at the initial visit and then once weekly for two weeks with the goal of 75% of patients to complete the SCP Questionnaire at each point in time.

Balancing Measures

Balancing measures of this DNP project were used to assess both positive and negative outcomes of the implementation process. Balancing measures for this DNP project included the number of readmissions, length of stay after readmission, and costs associated with readmission and hospitalization. The current 30-day readmission cost for this clinical facility was unknown, but a cost analysis was completed for the 30-day readmissions post-implementation.

Benefits/Risks

Benefits of this DNP program included the application of an evidence-based practice intervention through the use of SCPs prior to discharge to improve patient knowledge of preventative measures and common complications. There was minimal potential for emotional or psychological strain when this PI or oncology RN reviewed the SCP with the patient. The risk of these harms was minimized by providing a private atmosphere during the discharge process and SCP instructions. This PI took all the necessary precautions to decrease the loss of

confidentiality and patient's privacy. Oncology RNs were well-informed on the importance of providing an open pathway for communication with patients during the discharge and SCP instructions. There were no suspected economic risks of harm related to the study intervention.

Subject Recruitment

The subjects were recruited and consented by purposive sampling on all allogenic SCT patients admitted for transplantation by this PI, site champion, or a trained oncology RN during the admission process to explain the project's purpose, procedures, risk, benefits, and confidentiality. All direct oncology RNs were trained prior to project implementation by this PI.

Consent Procedures

This DNP program development and evaluation project obtained consent from all allogenic SCT patients participating in this project. All patients that met inclusion criteria for an allogenic SCT were consented by this PI, site champion, or a trained oncology RN during the admission process to explain the project purpose, procedures, risks, benefits, and confidentiality. See *Appendix N* for *Informed Consent Form.*

Subject Costs and Compensation

Allogenic SCT participants did not receive cost or compensation for taking part in this project. The two top performing oncology RNs were rewarded with gift cards for their participation in this project.

Project Timeline

The project implementation began January 13, 2021 and ended March 27, 2021. Data was collected and evaluated from late-February 2021 through March 2021. April 2021, the findings from the data analysis was disseminated to the academic facility. See Appendix T for Project Timeline.

Resources Needed and Economic Considerations

The discharge program was not associated with any cost to the participants of the project. The resources used for this project required paper, ink, staples, and two gift cards which all expenses were paid out of pocket by this PI with the approximate cost of $75.

Implementation

The implementation phase of this project was planned and applied by all stakeholders and team members; however, modifications to the interventions were necessary during the course of this project despite the meticulous planning efforts. Plan, Do, Study, Act (PDSA) cycles were utilized to analyze the implementation process and in-service meetings were scheduled to discuss processes, outcomes, and balancing measures to ensure that complications were addressed during the implementation process. The following discusses the implementation process, PDSA cycles, deviations from the project's timeline, and the current process flow during the implementation process.

Implementation Process

While awaiting Independent Review Board (IRB) approval, this PI created a PowerPoint presentation to present to the inpatient Registered Nurses (RNs) and Advanced Practice Registered Nurses (APRNs). A meeting with the oncology Clinical Service Manager (CSM) and Advanced Practice Partner (APP) of the bone marrow unit discussed their cooperation and support to promote adherence with the implementation process. IRB approval was obtained on Monday, January 11, 2021, with the implementation process beginning on Tuesday, January 12, 2021.

Nursing Education

After IRB approval, the initial intervention occurred with nursing staff education. Four 30-minute in-service project training meetings were conducted during the same week of IRB approval. Training sessions were on Tuesday, January 12, 2021, and Thursday, January 14, 2021 at 2:oo pm CST. A third session was held on Friday, January 15, 2021 at 4:00 pm CST to include the night and weekend staff nurses. The final session was on Monday, January 18, 2021 at 2:00 pm CST in the outpatient clinic with the APRNs. All nurses and APRNs attended the training sessions with a sign in sheet provided to account for each nurse and APRN.

Each nurse and APRN received all components of the project which included scripted pre-and post-transplant letters, SCP Questionnaire, EORTC-QLQ 25, and the discharge SCP educational material. The pre-transplant script contained a brief description of this PI contact information, history of the transplant program, the purpose of the project, and expectations prior to discharge. See Appendix L. The post-transplantation script contained instructions on completing the SCP Questionnaire prior to discharge, the components of the SCP, and a section that thanked the patients for participating in this DNP project. See Appendix M.

The SCP educational material consisted of a ten-page packet that included a welcome letter to the SCP participant that detailed the materials of the packet. A personalized and customizable treatment summary sheet with specific information pertaining to the patient's cancer diagnosis, transplant type information, chemotherapy drugs or radiation treatment used, along with the transplant center's contact information was included. Two pages of recommendations for preventative care for each of the body systems, as well as information about central catheter line care was provided. A two-page compilation of common complications post-transplantation with signs and symptoms was incorporated. A list of commonly used post-transplant medications described by name, drug type, usage, and side

effects were included as a reference sheet. Lastly, the final two pages consisted of activities of daily living tips and suggestions for discharging from the hospital. See Appendix I for SCP Patient Education Material Packet.

The other components of the project included the SCP Questionnaire which consisted of eight questions that inquired knowledge of post-transplant care, preventative measures, and scenarios of when to contact their oncologist. See Appendix J for SCP Questionnaire. The EORTC-QLQ 25 questionnaire consisted of nine questions that inquired information received on aspects of their disease and treatment and an open commentary section. See Appendix K for EORTC-QLQ 25.

In-service meetings reviewed the purpose and tentative objectives along with the importance of gaining consent for each of the participants taking part in this project. Time was allotted for questions about the project and the project's components after each in-service meeting. A detailed reminder email was sent with instructions for the project, each of the aforementioned project documents, along with a PowerPoint Presentation, to every inpatient nurse on the bone marrow transplant unit, the CSM, the APP, and the outpatient clinic APRNs to use as a reference. All of the project's consent forms, SCP Questionnaires, and discharge SCP education materials were located at the central nurse's station for easy access. This PI accepted new participants into the Survivorship Care Plan program after the completion of the initial in-service meeting. The official start date for acceptance of new stem cell transplant participants into this project was Wednesday, January 13, 2021.

Accepting Stem Cell Transplant Participants

On January 13, 2021, the project's first allogenic SCT patient elected to participate in the program. The inpatient nursing staff notified this PI the day of the patient's admission. The

following day, this PI discussed the objectives, risks, and benefits of participation in the project. After receiving verbal feedback about all the components of the project, the consent form was reviewed and signed. Three additional patients were admitted for their allogenic stem cell transplantation and were consented by this PI during the dates of January 13, 2021 through January 21, 2021.

Four additional patients were admitted undergoing their allogenic stem cell transplantation and were consented by this PI and nursing staff during the dates of February 3, 2021 through February 12, 2021.

Three final patients were admitted undergoing their allogenic stem cell transplantation and were consented by the oncology nurses during the dates of February 23, 2021 through March 5, 2021.

An educational session was provided explaining the expectations for discharge day and the following three weeks after discharge. This PI explained to each participant that an eight question SCP Questionnaire would be dispersed prior to discharge from the hospital and will assess baseline knowledge of common complications and preventative measures associated with allogenic stem-cell transplantation recovery. After the completion of the SCP Questionnaire, the discharge SCP education material was distributed to them for post-transplantation care. After reviewing all components of the project, this PI answered questions to ensure understanding from each participant who signed the consent form. The time spent with each patient was approximately 45 minutes after reviewing all project objectives, the educational discussion, interventions upon discharge, and the question-answer period.

The first two consented patients were administered the SCP questionnaires by this PI approximately four weeks after implementation. Each participant had an opportunity to ask

questions about self-care after completing the questionnaire and received their discharge SCP educational material. Participants were discharged on the same day following the completion of the questionnaire.

Participants' knowledge about their disease, treatment, and recovery concerns were assessed using the EORTC-QLQ 25 during the initial follow-up outpatient appointment. Knowledge attainment was reassessed during the initial visit with the redistribution of the SCP Questionnaire. Reassessment of knowledge attainment continued weekly during outpatient clinic visits for the next two weeks through the use of the SCP Questionnaire by the APRNs.

Monitoring of Participants

This PI attended weekly in-person chat meetings from February 1, 2021 through March 22, 2021 with the oncologists, bone marrow CSM, bone marrow APP, and other health professionals to assess and discuss each of the allogenic patient's current health status and anticipated discharge dates. An email was sent after each meeting to the nursing staff and APRNs to notify them of the patients to discharge for the upcoming week.

This PI met with each of the patients to reinforce expectations at discharge with the SCP Questionnaire and thereafter approximately 14 to 21 days post-transplantation. Each of the meetings ended with a question or commentary section to ensure patients concerns were voiced and answered.

This PI collected SCP Questionnaires and EORTC-QLQ 25 weekly from both outpatient and inpatient settings and entered the data into an excel spreadsheet. Chart reviews were performed from February 5, 2021 through March 20, 2021 by this PI to monitor 30-day readmissions post-transplantation. This PI found no 30-day readmissions among the participants due to the implementation of interventions to deter readmissions to the hospital such as ordering

blood products, intravenous fluids, and electrolyte replacement related to the post-transplantation recovery phase and routine labs drawn to monitor post-transplantation care.

Weekly emails between this PI, transplant coordinator, and the outpatient APRNs occurred to assess for missed appointments post-transplantation. Missed appointments during the implementation phase were due to closure of the clinic related to inclement weather.

Reviewing Processes and Measures

Data collection was updated weekly throughout the course of this project upon gaining consent from the participants. Paper copies of data were stored in a secured locked cabinet with only this PI having access. Electronic copies of data were secured within the project's implementation site encrypted secure network.

Inpatient weekly meetings occurred over a 10-week span beginning January 18, 2021 through March 24, 2021. An initial meeting was held for inpatient RNs, CSM, and APP to meet and review the project's progress on February 2, 2021. This meeting prepared the staff for the discharge protocol and review the process measure to distribute a SCP to all discharging patients. The next meeting occurred February 3, 2021 to discuss the same measures with the outpatient clinic APRNs as patients would continue to receive the SCP and EORTC-QLQ 25 in the outpatient setting. The next meeting held approximately two weeks later in the outpatient setting discussed balancing measures to decrease hospital cost by initiation of interventions to reduce hospitals readmissions. The last meeting occurred on March 17, 2021 reviewed the outcome measures of collecting the final completed questionnaires, collecting missing data on returned phone calls made by APRNs, and assessed if readmissions occurred since the previous meeting.

Timeline Variations

The initial project timeline varied when compared to the actual planned goals. The IRB process began mid-October 2020 with several revisions made to the SCP proposal. The IRB committee approved the protocol on January 11, 2021 and the SCT project implementation period began from January 13, 2021 until March 26, 2021. See Appendix S for Final Gantt Chart. The consenting period of allogenic SCT ended approximately two weeks early on March 7, 2021. Ending the consenting period early was necessary as allogenic stem cell transplant patients are typically hospitalized for 30 days post transplantation. The collection of data after March 27, 2021 would run the risk of not being included in the final results of the project. The projected number of participants needed for this study was not met by March 7, 2021 as time constraints were a determining factor. Project enrollment was a continuous effort as patients were admitted at various times throughout the project for their allogenic SCT. See Appendix R for Implementation Timeline.

PDSA Cycles

Inpatient Staff and Consenting. This PI noted after admitting the first two participants for this project that patients consent forms were not completed. This PI investigated and met with each patient that was admitted, but not consented. Patients reported information was given about the project during the admission process, but no consent form was received. Clarification about consent forms were answered by this PI during a weekly in-service meeting with the nursing staff. Staff expressed their uncertainties of when consents forms should be signed during the project. This PI reinforced that consents should be signed within 72 hours of admission. This PI designated a central location for all nurses to place the signed consents in a folder for this PI to pick up weekly and assessed the admission process for the next several weeks and noted that all admitted patients for the remainder of the project had signed consents.

Decreased Nurse Participation. This PI found low nurse participation during the first four weeks of implementation, in which eight of the 22 nurses obtained consents. At a weekly meeting this PI announced there would be a contest for two ten-dollar gift cards for the top two nurses with the most consents during February 5, 2021 through February 13, 2021. This PI announced the two winners the following week at the next meeting. After the implementation of the promoted incentive, this PI assessed that all admitted patients were consented and 18 of the 22 nurses sustained obtaining consents throughout the remainder of the project. The four nurses not accounted where out on maternity leave and family medical leave. This PI continued to provide support and praise while monitoring the project weekly for interventions to be implemented. Each week during the 30-minute in-service meetings this PI reviewed the number of patients discharging each week, patients that received the SCP Questionnaires and discharge SCP Questionnaire educational materials, and interventions needed to continue implementation.

Improved Discharge Education. The first consented allogenic SCT patient was prepared to discharge after four weeks of implementation. After week five of implementation the following patients noted complications in the discharge process such as decreased ability to focus, time constraints, and nurses not reviewing educational material. Two ten-minute meetings occurred on February 9, 2021 at 9:00pm CST and February 10, 2021 at 8:00pm CST to discuss the implementation of the SCP questionnaires the night prior to discharge to ensure adequate time for completion and proper review of the SCP educational material. Both in-service meetings occurred as planned with 17 of the 22 employed night shift nursing staff attending the meetings. This PI met individually with the remaining nursing staff unable to attend the in-service meetings. This PI monitored the new intervention of implementing the SCP Questionnaire at night through returned demonstration among the night shift nursing staff. An

increase in the discharge SCP Questionnaire scores improved by the increased number of correct answers noted after administering during the night. This PI found that all patients received SCPs and education for the remainder of the project implementing the SCP Questionnaires at night.

Outpatient Follow-up Appointments. This PI met with the outpatient clinic on February 4, 2021 to reinforce the correct implementation of the SCP Questionnaire and the EORTC-QLQ 25 at the initial visit and only the SCP Questionnaire weekly for two weeks as the first patient was scheduled to discharge the next day. Time constraints were noted with the application of the SCP and EORTC-QLQ 25 questionnaire after one week of monitored visits in the outpatient setting. An in-person meeting was conducted with the APRNs to determine the optimal time to implement the questionnaires. This PI and APRNs found that filling out the questionnaires in the waiting area was more effective to decrease time constraints. The APRNs agreed to having a designated area at the front desk with a copy of the questionnaires and a list of the participants each week to ensure patients receive and fill out their questionnaires at check-in while waiting. APRNs would collect the completed questionnaires during their visit with each participant and placed the completed surveys in the designated area for pick up. After the implementation of this intervention APRNs verbally reported that patients were not rushing to fill out surveys during their visits. This PI continued to conduct weekly meetings in the outpatient setting to gather data on missed appointments, readmissions to the hospital, barriers to distributing the SCP Questionnaire and EORTC-QLQ 25, and assessment of SCP Questionnaire scores.

APRN participation in the outpatient setting was noted to be low. After interventions were put in place for patients to fill out the questionnaires in in the waiting area, this created a low role for APRNs to participate in this project. This incident was assessed in the beginning of

March, and interventions were not put in place as the project only had approximately two weeks prior to ending implementation.

Interprofessional Team Dynamics

The SCT project team consisted of a nurse manager, executive director, advanced practice partner (APP), principal investigator, registered nurses (RNs), and advanced practice registered nurses (APRNs). Prior to the implementation of the project, team assurance to implementing quality care was established. Further qualities of the SCT team were responsible for the success of this project. These additional qualities included effective communications among team members, corresponding leadership roles with this principal investigator, and the continuous commitment of all team members in the project's goals.

Weekly meetings aided to achieve constant and effective communications among the team members to attain optimal implementation each week. Tasks were completed due to the presence of leadership members each week, team comradery, and continuous communication.

Professional leadership was noted in each member of the SCT team. Effective teamwork was noted in this project because each member possessed leadership qualities that contributed to the successful efforts of implementing this project. All nursing staff were capable and confident in themselves, peers, and leadership members during the implementation phase. The SCT team worked efficiently with this PI and the leadership members to monitor participants, identify problems, and evaluate if new changes were effective using the PDSA cycles.

Lastly, this PI encouraged engagement in post-care of SCT patients. The nursing staff and leadership members shared their concerns and opinions during each of the weekly meetings, with decisions made being made as a team.

Process Flow Chart Variations

The 30-day process flow for allogenic SCT patients involved substantial changes that were monitored continually during the course of implementation by this PI. The section below details the improved process flow of the allogenic SCT patients. See Appendix S for Final Allogenic Stem Cell Transplant Flow Chart.

The original flowchart consisted of a room assigned to each allogenic stem cell transplant patient on the bone marrow unit that arrived in the hospital admission area. The oncology resident and this PI were notified via phone of the patient's arrival to the bone marrow unit and the admission process was completed by the admitting RN. This PI or nursing staff invited the patients to participate in the project explaining the goals and aims. The patient voluntarily signed the consent form within 72 hours and began their allogenic stem cell transplant process the next hospitalized day in preparation to receive an allogenic stem transplant from their perspective donor. As the implementation phase continued the process flowcharts improved with each intervention used to improve the project.

The proposed process required modifications as the implementation phase continued over the 10-week period. After the completion of the stem cell transplant a recovery period occurred over seven to 27 days post-transplantation in patients without complications. Once the recovery period was completed and blood counts where stable patients were prepared to discharge.

The final process chart consisted of the night prior to discharge, the nursing staff or this PI met with the patient to implement the SCP Questionnaire and the discharge educational material. The patient was discharged to local housing to begin their outpatient clinic visits within one to two days post discharge. At the initial visit the SCP Questionnaire was redistributed along with the EORTC-QLQ 25 by the oncology APRNs to assess knowledge attainment of post-transplantation complications, aspects of their disease, and treatment.

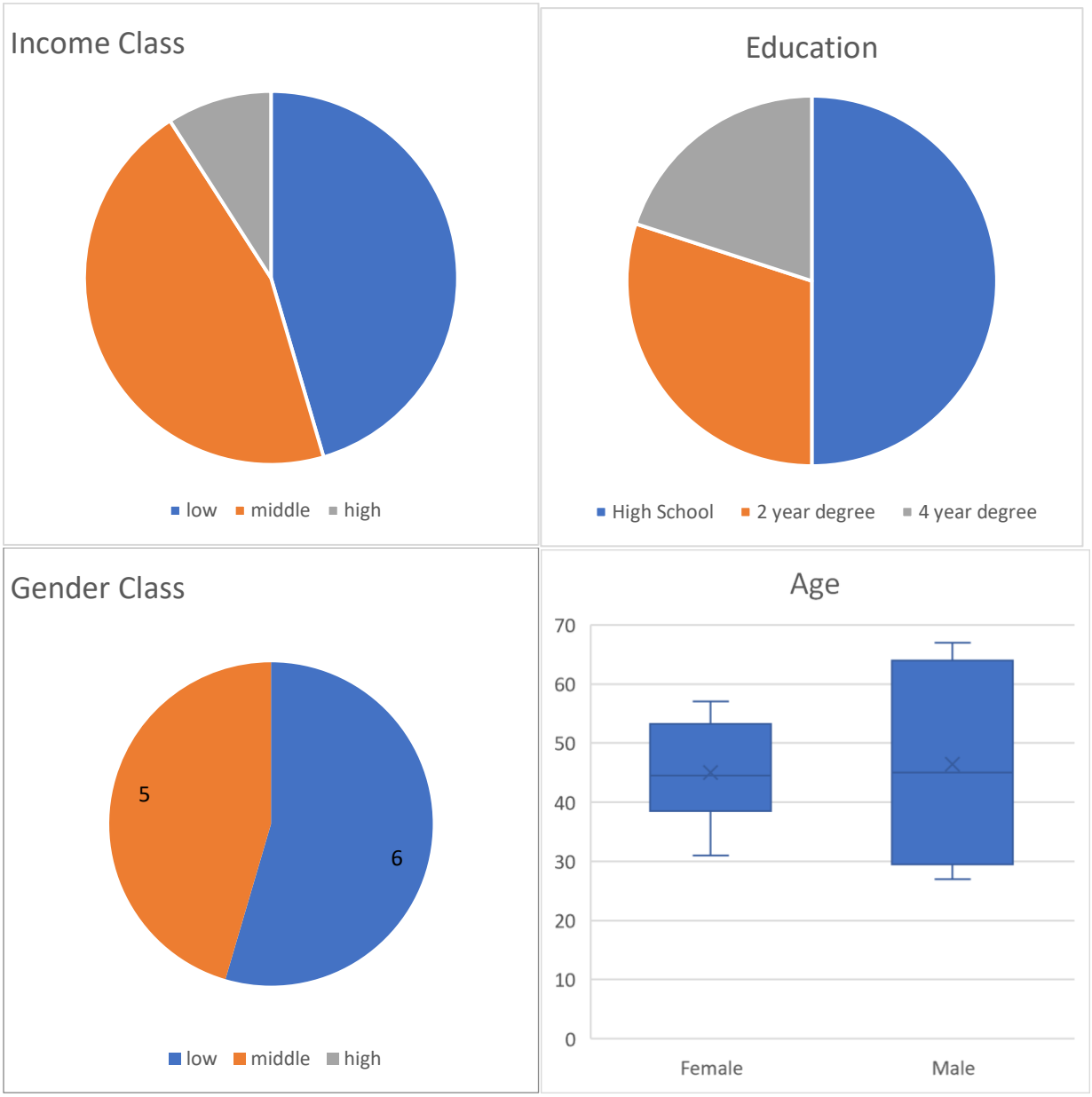
Evaluation

The evaluation of the Allogenic Stem Cell Transplant project was constant in monitoring process, outcome, and balancing measures. January 13, 2021 through March 20, 2021, 11 patients were admitted to the bone marrow unit undergoing their allogenic stem cell transplantation. A 100% of the participants (*N=11)* were enrolled over the course of the project. The project enrolled five participants in January 2021 (45.4%), five participants in February 2021 (45.4%), and one in March 2021 (.09%). The mean age of the participants was 45 years of age (*N*=11, SD=12.82) and had a small negative skew distribution with a mesokurtic curve with a range of 27 to 67 years. The mean average score of the discharge SCP (pre-test)was 85.1%, the mean average score of the outpatient SCP (post-test) was 100%. See Table 1 below for descriptive data.

Variables included knowledge of post-transplant care, demographics, outpatient clinic visit attendance, and health provider compliance. Inpatient setting healthcare compliance during the implementation phase accounted for 100% (*n*=36) and the outpatient clinic compliance accounted for 100% (*n*=4) . The total number of outpatient clinic visits for the 11 patients during the 10-week project period accounted for 97% (*n=297).* Additionally, 54.5% (*n*=6) of participants had a high school education or less, 27.7% (*n*=3) of participants had a two-year degree, and .18% (*n*=2) of participants had a four-year degree or higher. Of the 11 consented participants only one patient was African American with Caucasian ethnicity accounting for the remaining 10 participants. Women participants accounted for 54.5% (*n*=6) and men participants accounted for 45.4% (*n*=5) of the project. Lastly, 45.4% (*n*=5) of participants had an annual income of less than $40,000, 45.4% (*n*=5) of participants had an annual income more than $40,000 but less than $80,000, and .09% (*n*=1) of participants had an annual income more than

$80,000. The income class was determined on a low-, middle-, and high-class system (Snider, 2020).

Table 1. *Summary of Descriptive Data*



A paired sample *t*-test was conducted to determine if the average stem cell transplant participant post-SCP questionnaire scores increased significantly from the pre-SCP questionnaire scores. The average post-SCP questionnaire scores were significantly higher than the pre-SCP

questionnaire scores, M=100, t(10) = 3.329, p=.007, compared to before (M=85.18). The Shapiro Wilk's Test of normality indicated that the normality assumption was violated (W=0.763, p 0.003) the data was not normally distributed, and the sample size was also small (N=11). A nonparametric test the Wilcoxon Signed Ranks Test was performed, due to the violation of the Shapiro Wilk's Test. The Wilcoxon Signed Ranks Test indicated that the post-SCP questionnaire scores were statistically significantly higher than pre-SCP Questionnaire scores Z=,-2.333 p<.020. The post-SCP Questionnaire knowledge mean demonstrated a significant improvement over the pre-SCP questionnaire after receiving the SCP educational material at discharge.

The findings from this project demonstrated a negative correlation between the distribution of SCPs prior to discharge, the follow-up SCP Questionnaire during the outpatient visits, and the absence of 30-day readmissions among the allogenic SCT patients. These findings were consistent with this PI's and the key stakeholder's Needs Assessment and proposed project objectives of reducing 30-day readmissions. Implementing a SCP at discharge improved patient knowledge and understanding of preventative measures and common complications post-transplantation and proved to have a significant impact at this academic facility.

Missing Data

The collection of data for this stem cell project was difficult with a few reasons. Readmission data for this stem cell project was not collected because readmissions did not occur during the project's time frame. Only eight patients of the 11 discharged patients had a 30-day period to be evaluated.

There was also missing data on the phone calls received in the outpatient clinic, as only two of the 11 patients had documentation in their charts about healthcare provider questions and

phone calls returned by the APRNs. One of the patients required clarification about a post-transplantation medication and the other patient inquired about COVID-19 vaccination post-transplantation. This data was not identified until the end of implementation and interventions were not put in place due to time constraints. Lastly, data was not collected for one week due to the inclement weather and the closure of the clinic.

Process Measures

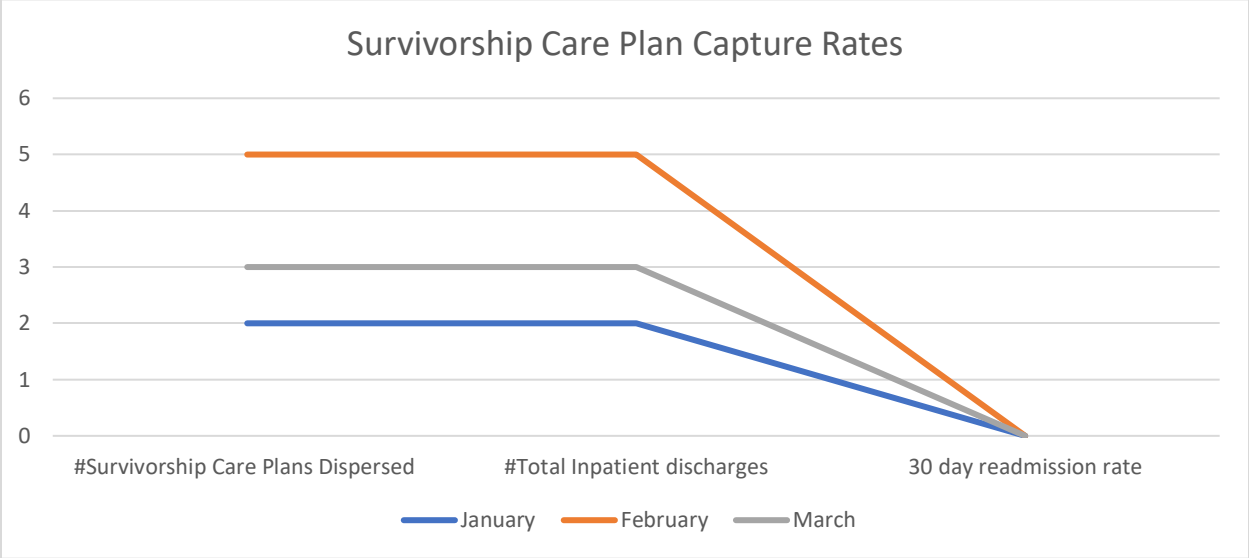
Process measure one within this project included the percentage of patients who received survivorship care plans. Process measures two included the correct use and implementation of SCPs by providers and the factors that prevented the correct use. Process measure three included the correct use of the redistribution of the SCP Questionnaire and the EORTC-QLQ 25 in the outpatient setting. Process measure four included measuring the percentage of patients who completed the SCP Questionnaire and the EORTC-QLQ 25 at the initial visit and the SCP Questionnaire once weekly for two weeks. Each weekly team meeting discussed measures to address all insufficiencies and reported using descriptive statistics.

Survivorship Care Plan Capture Rate

The SCT patients capture rate was monitored weekly through the use of the EORTC-QLQ 25 in the outpatient setting. There were two specific questions used from the EORTC-QLQ 25 to help capture SCP distribution rates that directly asked the patient if written discharge education material was received at discharge and if tips to managing your illness at home were explained. Patients were not receiving post-transplantation educational material prior to this project. The goal of this project was to initiate SCPs to 75% of discharged patients, but the goal was exceeded and a 100% of patients received SCPs at discharge.

Two patients discharged in January 2021, five patients in February 2021, and three in March 2021, all with a capture rate of a 100%. See Table 1 for Survivorship Care Plan Capture Rates.

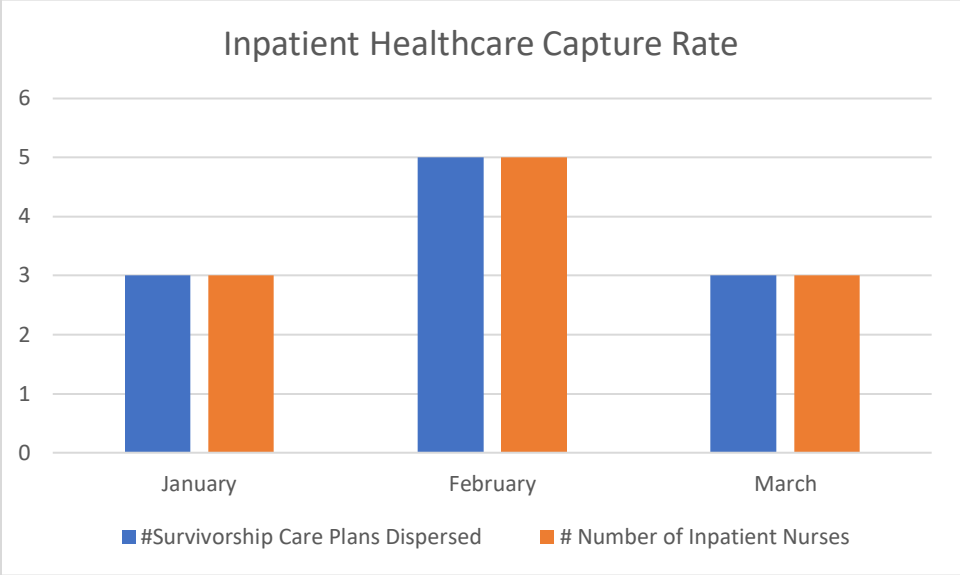
Table 1. Survivorship Care Plan Capture Rates.



Inpatient Healthcare Provider Capture Rates

The healthcare provider capture rate was assessed by a combination of information. The information received from the retrospective chart review and the two specific questions used from the EORTC-QLQ 25 helped to capture healthcare provider rates that directly asked the patient if written discharge education material was received and tips to managing their illness at home were explained. The information from the chart review revealed which nurse discharged the patient for that day and that information was corresponded with the data from that particular patient's response on the EORTC-QLQ 25 questionnaire. The collection of data revealed that each nurse discharged patients correctly and implemented the SCP at discharge which showed a 100% nurse compliance rate. See Table 2 for Inpatient Healthcare Provider Capture Rates.

Table 2. Survivorship Care Plan Capture Rates.



Outcome Measures

The outcomes of the SCT project demonstrated the overall success of increasing patient knowledge and understanding of post-transplantation care. The outcomes evaluated include the SCP Questionnaire pre- and post-survey scores.

Participant SCT Education. SCT participants were provided a pre-and post-educational questionnaire to determine if post-transplant knowledge improved. The EORTC-QLQ 25 was used to assess if patients received a SCP, tips on managing their illness at home, and possible side-effects of treatment. A 100% of participants reported receiving all written information at discharge. The goal of this measure was to show a post-questionnaire mean correlation score of 75%. The mean of the pre-educational questionnaire was 85.1 (*N*=11, *SE*= *4.425).* The post-educational questionnaire demonstrated an increase of 14.9% in comparison with a mean of 100% (*n=11, SD=.00).*

The projected goal of achieving a mean score of at least 75% for post-knowledge educational questionnaire was successful. The educational measures illustrated that patients

improved their overall knowledge of post-transplant care. These results can be correlated with the routine use of a SCP provided at discharge as this tangible material provided a resource to patients after discharging from the hospital. The information on tips for activities of daily living and preventative measures aided in reinforce post-transplant self-care interventions provided by this PI. See Table 3 for Summary of SCT Education.

Table 3. *Summary of SCT Education*

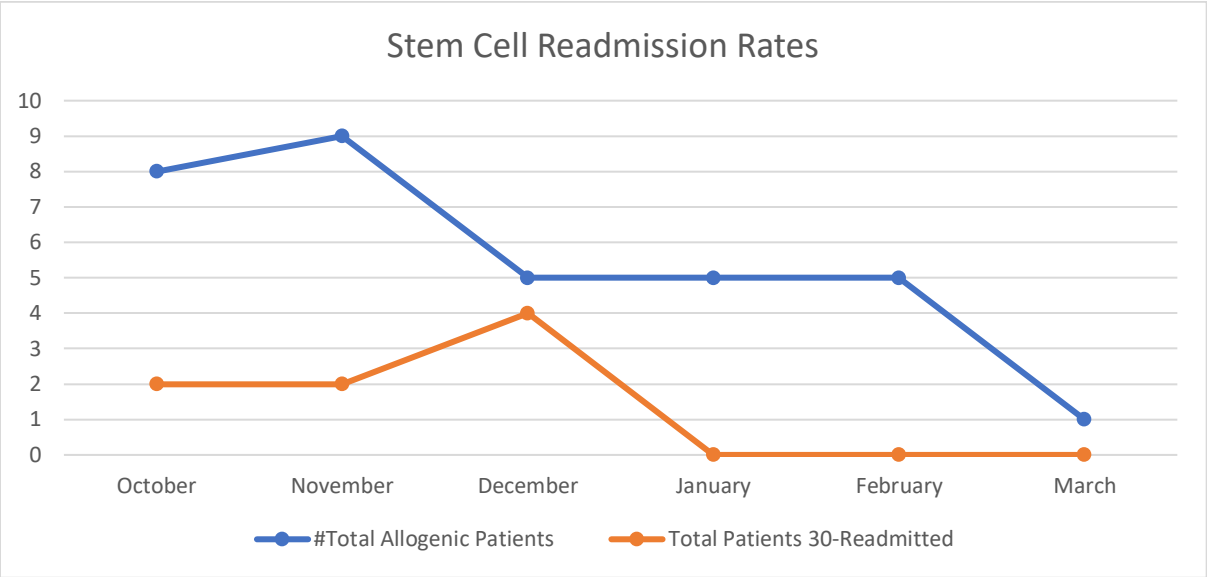
Variables	***M***	***Range***	***SD***
Age	45.6	40	12.83
Pre-Knowledge	85.18	38	14.68
Post-Knowledge	100	0	.000

Stem Cell Readmission Rates. An outcome measure was to reduce the readmission rate by 50% by March 2021. Of the 11 participants, no patients were readmitted within the 30-day period following their allogenic stem cell transplantation. A retrospective chart review from was completed to demonstrate and signify a difference in samples. The chart review revealed there were 22 allogenic transplants performed during October 2020 through December 2020. Of the 22 transplants performed eight patients were readmitted with complications of infections, GvHD, and pneumonia with an admission rate of 36% (n=14).

A nonparametric test was conducted to emphasize the difference of samples where readmissions was a dependent variable. The binomial test calculated whether the proportion varied significantly from 36%, the pre-stem cell project readmission rate. The *p*-value calculated was 0.039 with a level of significance $p<0.05\%$. The results demonstrated the stem cell

discharge program was significantly different. The project was effective in reducing 30-day readmission rates by 36% to 0% (N=0). See Table 4. Stem Cell Readmission Rates.

Table 4. Stem Cell Readmission Rates.



Unintended Consequences of Project

The implementation phase disclosed a few incidences that were unforeseen during the pre-planning phase. The events were recognized but were unable to be revised to ensure the corrections could be made to prior to completing the project.

In the outpatient clinic the APRN involvement was minimal and an unforeseen constraint. APRNs did not have an active role in the outpatient setting and demonstrated a decreased participation in leadership roles for this project. Interventions were not in place to combat this consequence which would have proved beneficial if assessed earlier in the implementation phase.

Data Maintenance and Security

Data was collected using an academic hospital system's electronic medical record (EMR) system. Data related to the project was stored on an Excel sheet on this PI's password protected

private computer with no one else to access it. See *Appendix H* for the project codebook. Data collected includes:

- Demographic information that included: gender, age, marital status, ethnicity, educational background, and socioeconomic level
- Distribution of SCP Questionnaire from the trained oncology RN
- Distribution of SCP Questionnaire by trained APRN or oncology doctor
- Attendance to follow-up visits
- Missed appointments
- Readmissions within 30 days after allogenic SCT
- Complications that are related to 30-day readmissions
- Interventions in the outpatient clinic to prevent deterioration after complications are identified.

Discussion

Project Impact

The discharge project demonstrated substantial impacts for the participants in this project. The participants learned imperative preventative measures and common complications to help improve health outcomes post-transplantation. Understanding preventative care measures, tips on activities of daily living precautions, signs and symptoms of common complications and the usage of common medications post-transplantation were the primary focus of the education provided. The improvement of post-transplant knowledge improved 14.3% over the course of the project. The evidence-based education contained in the SCPs were useful to the overall success of the discharge program.

Literature Comparison

The stem cell discharge program replicated many outcomes from the literature in reducing 30-day readmissions. Phillips et al. (2020) found that 68.8% of post-transplant patients improved their post-care knowledge of cancer treatment and common complications after receiving a survivorship care plan. Majhail et al. (2019) reported that 87% of survivors reported SCPs to be useful with understanding side effects, related treatments, and post-care health management. The implementation of this program and development project at this academic facility reduced 30-day readmission to 0% during the 10-week implementation period. Krames (2017), reported patients who received SCPs along with post follow-up care were 15% less likely to be readmitted or visit the emergency department.

Economic and Cost Benefits.

Allogenic SCT hospital costs have grown 85% over the past two decades costing nearly $1.3 billion annually to the healthcare system (Khrouf, 2017). Broder et al. (2017), found the median total healthcare cost of allogenic SCTs were approximately $289, 283 for a hospital stay of 35 days. Rauenzahn et al. (2015), concluded the median time for post-transplantation readmission was 14 days and a median length of stay exhibited nine days. On average, 30-day readmissions cost around $40,687 depending on the complications experienced by the allogenic SCT patient and the severity of necessary treatment. (Cho et al., 2018).

Through the implementation of this DNP program and development project, a reduction in healthcare costs and 30-day readmissions roughly saved this academic facility $18,000 per allogenic SCT patient on 30-day readmission rates by improving after-hospital care instructions (Kommers, 2019).

Limitations

In spite of meticulous planning, there were notable limitations during this study: sample size, sample profile, single facility, questionnaire usage and a short timeline are all restrictions and elements that will be discussed as they may affect the final results.

Sample Size. The allotted timeline and slow admission of patients with acute myeloid leukemia admitted to the project's facility limited patient participation in this project. A larger sample size would improve the power of the project.

Sample Profile. This project was limited to a specific population of allogenic stem cell transplant patients. This project also excluded all patients below the age of 18, participants with a life expectancy of less than 30 days, those who did not have a diagnosis of acute myeloid leukemia, and those patients who previously received an allogenic SCT within the last year. The exclusion of patients with previous experiences from multiple transplants was necessary as their responses could create bias and taint the results of this project. All of these restrictions were necessary components needed to qualify for an allogenic transplant on the bone marrow unit and allowed for a homogenous sample for this project.

Single Facility. The use of one facility to identify if the evidence-based interventions of this project improved post-care transplant patient knowledge is limiting. Some alterations may be required to conduct this project into another similar facility to anticipate comparable outcomes. Although there was statistical significance, each bone marrow unit has a variety of transplant qualifications which may not demonstrate the results of multiple facilities admitting allogenic patients.

Timeline. The SCT project's implementation phase was limited to approximately 10 weeks which reduced the number of patients to participates in this project. The facility would

admit an average of 3-5 allogenic patients each month. An extended timeline would permit a greater sample size that would increase the effect size of the project to improve statistical significance.

Validity and Reliability of SCP Questionnaire. The SCP Questionnaire could generate possible bias and limitations as this survey was strictly used for the purpose of this project and independently designed by this PI. The validation and reliability of this survey could create further bias as it was sought content and constructed by expert reviews from this PI's project committee members and a pilot test was not performed prior to implementation.

Limited Outpatient Clinic APRNs Involvement. The APRNs participation was very limited which reduced the intended involvement with patients in the outpatient setting. This limitation could create decreased opportunities for leadership involvement in the outpatient setting. This limitation could lessen beneficial educational opportunities in the outpatient setting to improve overall patient health outcomes.

Factors Limiting Transferability

The stem cell project was designed specifically for an academic facility where this PI performed this project. This academic facility assembled its own standards, principles, and structural framework. The care provided by each stem cell bone marrow unit are required to meet state and federal standards that command the level of care provided and varies among each program. Because of the variations among each stem cell bone marrow program, changes may be required to transfer and adapt in a similar stem cell program into another healthcare facility.

Threats to Internal Validity

Confounding Variables. This stem cell bone marrow unit only performs transplants to acute myeloid leukemia patients. This specific cancer population only account for 16% of

patients eligible for allogenic stem cell transplants (Mayo Clinic, 2020). Not knowing how other cancers may respond to this same educational material in similar facilities presents potential threats to the internal validity of this project.

Efforts to Decrease Limitations

Limitations recognized during the implementation phase such as timeline, staff shortage, and sample size are difficult variables to control and affected the project's outcome measurements. The limitations such as sample profile and incentive measures were implemented to reduce interference with outcomes. The sample profile exclusions were implemented as it eliminated the stem cell patients that received previous transplants within the last year. This population would potentially alter the outcomes due to the pre-existing complications from previous transfusions and prior experiences and expectations from previous transplantation. Inclusions should be considered in projects with a larger sample size. This PI offered two gift cards as incentives to help combat low nurse participation at the beginning of the project. Due to staff shortage in the inpatient setting and minimum financial resources needed for implementation, staff members volunteered with the PI being the most consistent educator and data collector during this project.

Recommendations

As the stem cell transplant project changes into the new discharge policy, there are recommendations that will increase the efficiency in providing education to patients with cancer.

Recommendations for future endeavors include more active interventions from the APRNs. APRNs could serve as leaders and resources to collaborate with other interprofessional team members and improve the healthcare outcomes for this patient population. Future studies should ensure that APRNs have an active role and demonstrate a present leadership role in the

outpatient clinic. Evaluation of telephone calls placed and received by patients and APRNs should be monitored closely to determine information that could be gathered to further support efforts to increase the efficacy of future projects.

It is recommended that the nursing management provide an opportunity for nursing staff members to become leaders in this new program. The leaders of this discharge program will continue to implement changes as necessary and add resources that improve the educational materials. The leaders could provide online modules for continual education while using the same program guidelines to guarantee methods are carried out effectively.

As time progress with the use of this project, a Telephone Initiated Guided Response (TIGR) video could be created for patients to watch in their rooms on the television prior to discharge. The paper copies could be made electronic and emailed to patients to provide readily available information at their fingertips. APRNs and nursing staff are encouraged to add information to the discharge education material to increase the usefulness to patients and their families after discharging.

Sustainability

This project demonstrated a strong commitment to reduce 30-day readmission rates and deliver the greatest care to the allogenic stem cell transplant patients at any hospital. The stem cell project was successful in educating patients about preventative measures, common complications, and improving post-transplantation care knowledge. Administration support is an important element to the sustainability of any project. The benefits and the progressive outcomes of this mainstay program within the academic facility have been accepted by senior stakeholders and staff members. The administration at this academic facility were vested, supportive, and passionate towards this project and its positive impact decreasing 30-day

readmissions in the oncology department. The bone marrow unit will continue to make the discharge protocol the standard of care for allogenic SCT patients. The PowerPoint presentation was made available in the conference room located on the unit to aid in continued staff education.

This PI released all duties to the nursing leadership in preparation for the longevity of this project on the bone marrow unit. All resources from this project were distributed to each of the staff members and leadership members to continue monitoring outcome and process measurements. Over time, practices may change as different guidelines and procedures improve, nonetheless the fundamental principles of this stem cell project will remain in place.

Healthcare Quality Impact.

Allogenic SCTs have a massive impact on the lives of transplant patients and their families (Bell et al., 2017). Evidence from the review of literature indicated that SCPs in the clinical setting provided a safe practice that was associated with increased patient knowledge of preventative measures and improved health outcomes (Seto et al., 2018). SCPs assigned responsibility for managing ongoing post-transplant care and provided the necessary tools to support patient engagement in conversations about prevention, follow-up care, and other concerns when meeting with their oncology healthcare providers (Selove et al., 2016). The stem cell transplant program reduced 30-day readmission rates among allogenic stem cell transplant patients while improving patient knowledge and understanding of post-transplantation care. All interventions provided in this project were evidence-based research efforts that provided overall quality care and resources to patients suffering with acute myeloid leukemia. Through the utilization of the SCP educational material and continuous monitoring, patients were able to

discharge home safely with preventative measures at their fingertips to utilize after transplantation.

This project may also help with reducing hospital costs to patients and Medicare by improving communication and care coordination in discharge plans and reduce avoidable readmissions (Centers for Medicare & Medicaid Services, 2020).

Policy Implications.

There were no policies or protocols for the discharge process on the bone marrow unit. The implementation of this DNP project assisted with developing a discharge policy that created awareness for improving patient education during the discharge process in this healthcare system. This project demonstrated the ability to monitor and evaluate improvements in patient's knowledge of post-transplant care. Implementing policy changes with this project should be considered in this academic facility as patients demonstrated increased knowledge and improved health outcomes as there were no 30-day readmissions noted.

Dissemination

The results of this project will be disseminated virtually to the DNP committee at the University of Arkansas, Eleanor Mann School of Nursing and the academic facility where this project was implemented using a PowerPoint presentation. The results of this project will be shared with the community oncology members interested in providing evidence-based care to the leukemic population.

Project outcomes will be shared with the local academic facility oncologists, nurse practitioners, and registered nursing staff to demonstrate the effectiveness and benefits of using educational information at discharge. Through the use of the evidence-based information

provided these healthcare professionals can incorporate key teaching points into their everyday practice.

Professional Reporting.

Dissemination via professional reporting will emphasis the importance of this project and highlight the positive outcomes of increased knowledge of post-transplantation and decreased 30-day readmission rates. Project results will be distributed to the *Journal of Oncology, the American Journal of Clinical Oncology, and the Journal of Cancer Research & Clinical Oncology*. Future endeavors are to provide a PowerPoint presentation at the local level during the St. Vincent's Infirmary Oncology & Chemotherapy trainings for annual certification hours. Lastly, the dissemination of these results can be presented in the near future to the Arkansas Clinical Oncology Association and Hematology Society and the Arkansas Cancer Summit all held annually to showcase recent progress in meeting the goals and objectives of the state's comprehensive cancer plan.

Conclusion

This DNP project illustrated the usefulness of a routine discharge program implementing SCPs along with a follow-up questionnaire among allogenic SCT patients. Evidence supported the use of routine SCP and follow-up measures to decrease 30-day readmission rates. The implementation of SCPs provided allogenic SCT patients with post-transplantation knowledge of preventative measures and post-transplant complications. Over the 10-week period, this project demonstrated patient education on post-transplantation care was a milestone for reducing 30-day readmission rates among stem cell transplant patients. Providing evidence-based educational material has shown to significantly increase patient knowledge of preventative measures. Although further research is needed to determine if this program would continue to decrease

readmissions, this project demonstrated that both nursing interventions and patient education could significantly reduce 30-day readmission rates.

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Appendices

A. Global Aims Assignment

B. Process Flowchart

C. Evidence Table

D. Theoretical Framework

E. Conceptual Model

F. Gantt Chart

G. Statement of Mutual Agreement for DNP Guidance

H. Data Collection Sheets

I. Copy of Educational Materials

J. Copy of Questionnaires

K. Copy of Surveys

L. Recruitment Script

M. Consent Form

N. Copy of Approval Letters, if applicable

O. HIPAA Completion Forms

P. Copy of Site's IRB Approval, if applicable

Q. Final Gantt Chart

R. Implementation Timeline

S. Revised Process Flowchart

Appendix A: Global Aims Assignment

Write a Theme for Improvement: The Effects of a Survivorship Care Plan on Hospital Readmission Rates in Allogenic Stem-Cell Transplant Patients

Global Aim Statement

Create an aim statement that will help keep your focus clear and your work productive:

We aim to decrease readmission rates of allogenic stem-cell patients post transplantation
(Name the process)

In: UAMS E7 Bone Marrow Transplant Unit
(Clinical location in which process is embedded)

The process begins with: implementing survivorship care plans during the discharge process
(Name where the process begins)

The process ends with: with decreasing readmission rates
(Name the ending point of the process)

By working on the process, we expect: decrease readmission rates
(List benefits)

It is important to work on this now because: it is a gap in care for post-transplantation complications that necessitate readmission within four months post transplantation among allogenic patients
(List imperatives)

Create Flowchart

Specific Aim Statement

We will: ☐ improve ☐ increase ☐ decrease

The: ☐ quality of ☐ number/amount of ☐ readmission rates among allogenic patients
(process)

By: 25 percent
(percentage)

OR

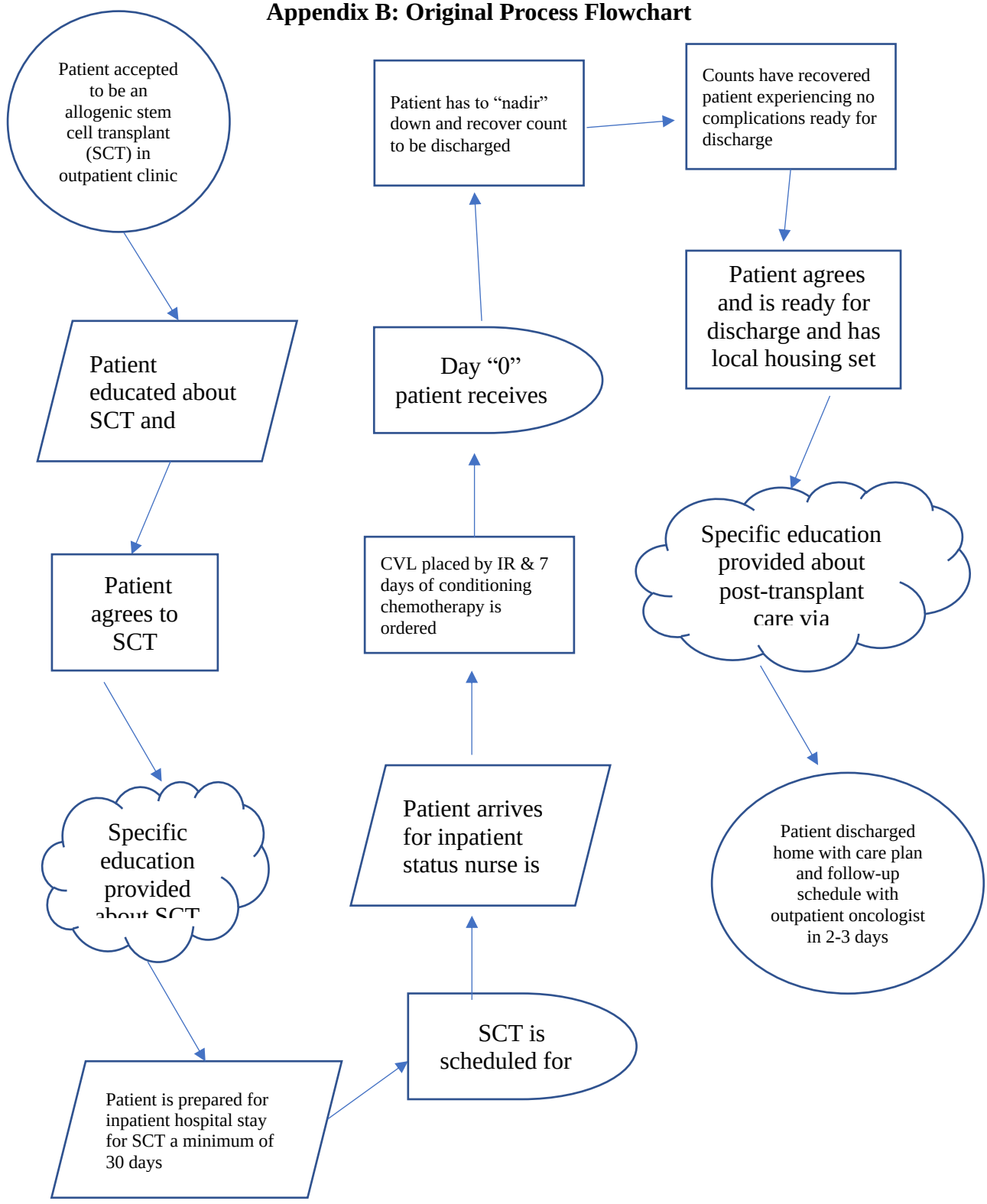
From:
(baseline state/number/amount/percentage)

To/By: implementing a survivorship care plan during the discharge process and assess information perceived by patient utilizing the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire 25 (EORTCQL-25).

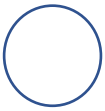
ING

By: 05.01.2021
(08.02.2020)

Appendix B: Original Process Flowchart



Key Guide to Process Flowchart

Symbol	Name	Function
	Circle	Represents a start and endpoint
	Rectangle	Represents input/output
	Square	Represents a process
	Cloud	Represents educational process
	Arrow	Represent action that has taken place
	Line	Represents a connection between two related points

Appendix C: Evidence Table

Authors	Year	Country where research conducted	Theory guiding the study and identification of variables	Independent or Treatment Variable(s)	Dependent or Outcome Variable(s)	Design type	Sample (N =) Method	Data Collection tools	Brief Summary of Results	Strength of evidence
Bejanyan, N., Bolwell, B., Lazaryan, A., Rybicki, L., Tench, S.,…& Coplean, E	2015	USA	No theory applicable	Risk factors for 30 day readmission	Allogenic patients	Cohort	**N=618** Prospective case review	Chart review .	30 day readmission were related to infectious complication such as GvHD. These infectious outcomes led to poor health outcomes in allogenic stem cell transplant patient.	IV
Bhat, V., Joshi, A., Sarcode, R., Chavan, P.	2015	USA	No theory applicable	CMV	Allogenic patients	cohort	N=23	Metanalysis	CMV infections after SCT is a critical complication and can be fatal. CMV affects the liver, lungs, and brain which results in a poor mortality rate among this population.	I
Blanch-Hartigan, D., Forsythe, L., Alfano, C.,	2015	USA	No theory applicable	Survivorship care plans	Allogenic patients, health care provided, and primary care physicians	Systematic review and meta-analysis	N=219	Metanalysis	Primary care providers who received survivorship care plans from an oncologist were more likely to report survivorship care and coordinate care post transplantation.	I

Smith, T., Nekhlyudov, L., Ganz, P., & Rowland, J.										
Birken, S., Clary, A., Bernstein, S., Bolton, J., Taradif-Douglin, M., Mayer, D., Deal, A., & Jacobs, S.	2018	USA	No theory applicable	Cancer surviors	Associated hospital costs and survivorship care plans	Qualitative study	N=10 Patient data collected from third quarter of 2010 through third quarter of 2015. Performance data from cancer programs participating in the American Society of Clincal Oncology Initiative Literature Search and web-based resources	Data collected from third quarter of 2010 through third quarter of 2015. Key data elements included estimation of costs, and patient living with cancer clinical outcomes.	Literature search found that SCPs are innovative strategies to promote communicative health literacy and engage patient and health care providers	II
Broder, M., Chang, E., Hashmi, R., Villa, K., Quock, T.,	2017	USA	No theory applicable	Cost of stem-cell transplantation	Allogenic stem cell transplants	Co-hort	N=152 retrospective chart reviews	Data collected via survey and found that 54% of survivorship commented that financial concerns were the biggest problem post transplantation. .	Survivorship care plans are applicable to all survivors and can help provide financial resources to reduce financial toxicity which addresses a highly prevalent patient need.	III

Reddy, S., & Arai, S.										
Coughlin, S., Dean, L.	2019	USA	No theory applicable	Financial distress	Cancer surivovors	Qualitative study	N-132	Data was acollected via insurance claims and web-based resouces	Found that allogenic stem cell transplants are among the highest of all transplants. This burden leds to many financial complications among patients and led to lower follow-up appointments. Also found that allogenic patients have a higher overall cost of hopstial readmission post-transplantation. .	VII
Garcia, S., Kircher, S., Oden, M., Venerus o, A., McKoy, J., Pearman , T., & Pendo, F.	2016	USA	No theory applicable	Survivorship Care Planning	Stem cell transplant cancer centers	Cohort study	N=62	Information gathered from survivorship interviews	Based on the information gathered from the cancer survivors a new framework was designed to implement quality improvement for care among cance cents	II
Giese-Davis, J., Sisler, J., Zhong, L.,	2018	Canada	No theory applicable	Developed survivorship care plans	Patients with GvHD complications	Quantitative study	N=32	Survies were gathered from cancer survivors living with complications from GvHD	Survivorship care plans should be recommended to explore and develop to help build on patient experiences and improve clinical practice outcomes	IV

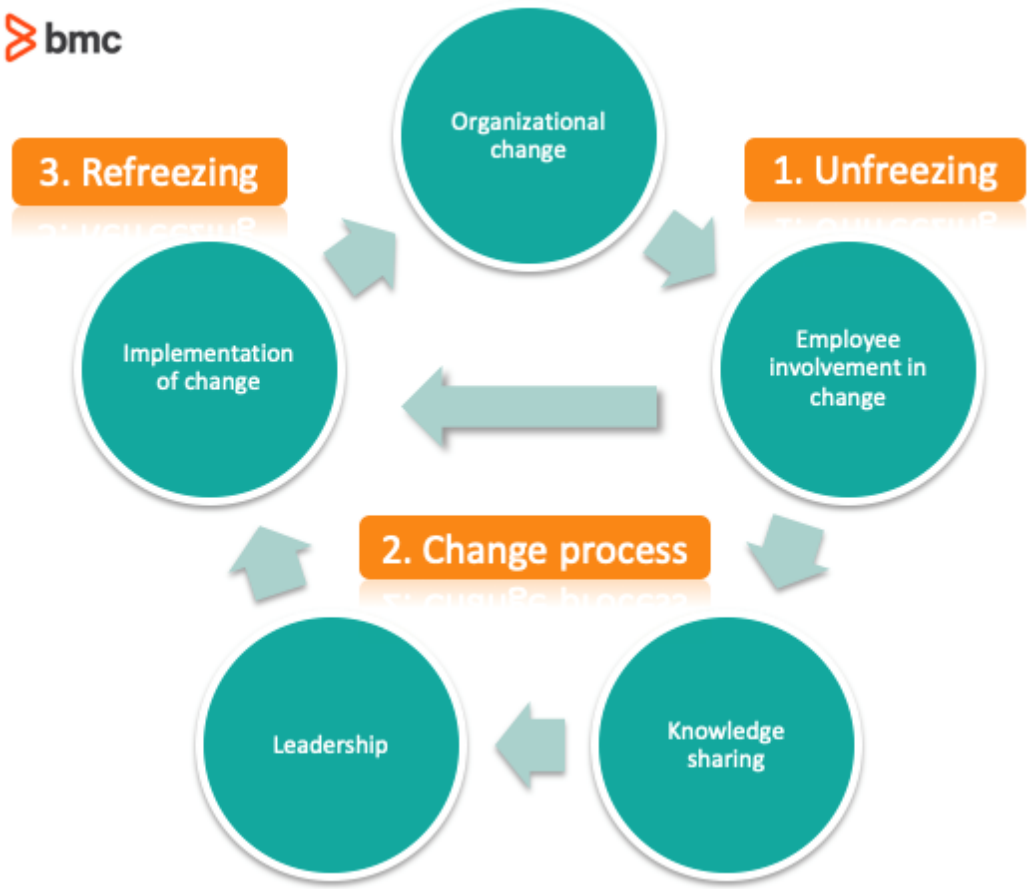
Brandelli, Y., McCormick, J., Railton, C.,…& Carlson, L.										
Jacobsen, P., DeRosa, A., Henderson, T., Mayer, D., Moskowitz, C., Paskett, E., & Rowland, J	2018	USA	No theory applicable	Cancer survivorship care plans	Health care delivery system	Systematic review	N=13	Randomized and non-randomized studies were used to help gather information on the effective of SCPs in the health care delivery system	Findings from this study found that single study had positive correlation with SCPs, but the larger studies showed negative correlations.	I
Kanagasundram, S., Amini,	2019	USA	No theory applicable	Common compications among allogenic patients	Allogenic stem cell patients	Systematic review	N=10	Systematic review performed by electronic data bases.	Complications post-allogenic transplant can have many years of onset for patients.	I
Kaur, J., Muthukutty, A., Ragupathi, M., MacLac	2007	USA	No theory applicable	Readmission rates	Allogenic patients	Retrospective study	N=15	Electronic health records	A structured and intense follow-up process in the first 60 days post-transplant may be the most effective for reducing and identifying preventable readmissions	III

hlan, C., & Pinerior, L										
Kenzik, K.M., Kvale, E.A., Rocque, G.. Wahnefried, D., Martin, W., Jackson, B…Pisu, M.	2016	USA	No theory applicable	Treatment summaries and follow-up care	SCPs, self-care efficacy and health care utilization among allogenic transplant patients	Systematic review	N=20 patients	Data collected between January 2011 and June 2017 via surveys	Written treatment summary and follow-up care plans enhances survivor self-efficacy for managing cancer	I
Klemanski, D., Browning, K., & Kue, J.	2016	USA	No theory applicable	SCPs	Cancer survivors and health care providers	Systematic review and metanalysis	N=29	Randomized study	Oncology providers supported the use of survivorship care plans, but reported significant barriers for provision	I
McKenna, D.., Sullivan, M., Hill, J., Lowrey, C., Brown, J., Hickman, J., &	2013	USA	No theory applicable	Readmissions and high risk factors and preventative measures	Allogenic SCT	RCT	N=235	Data collected by trained staff using electronic medial charts	High risk patients readmissions are common. Enhanced education and follow-up through phone calls may decrease readmission rates.	II

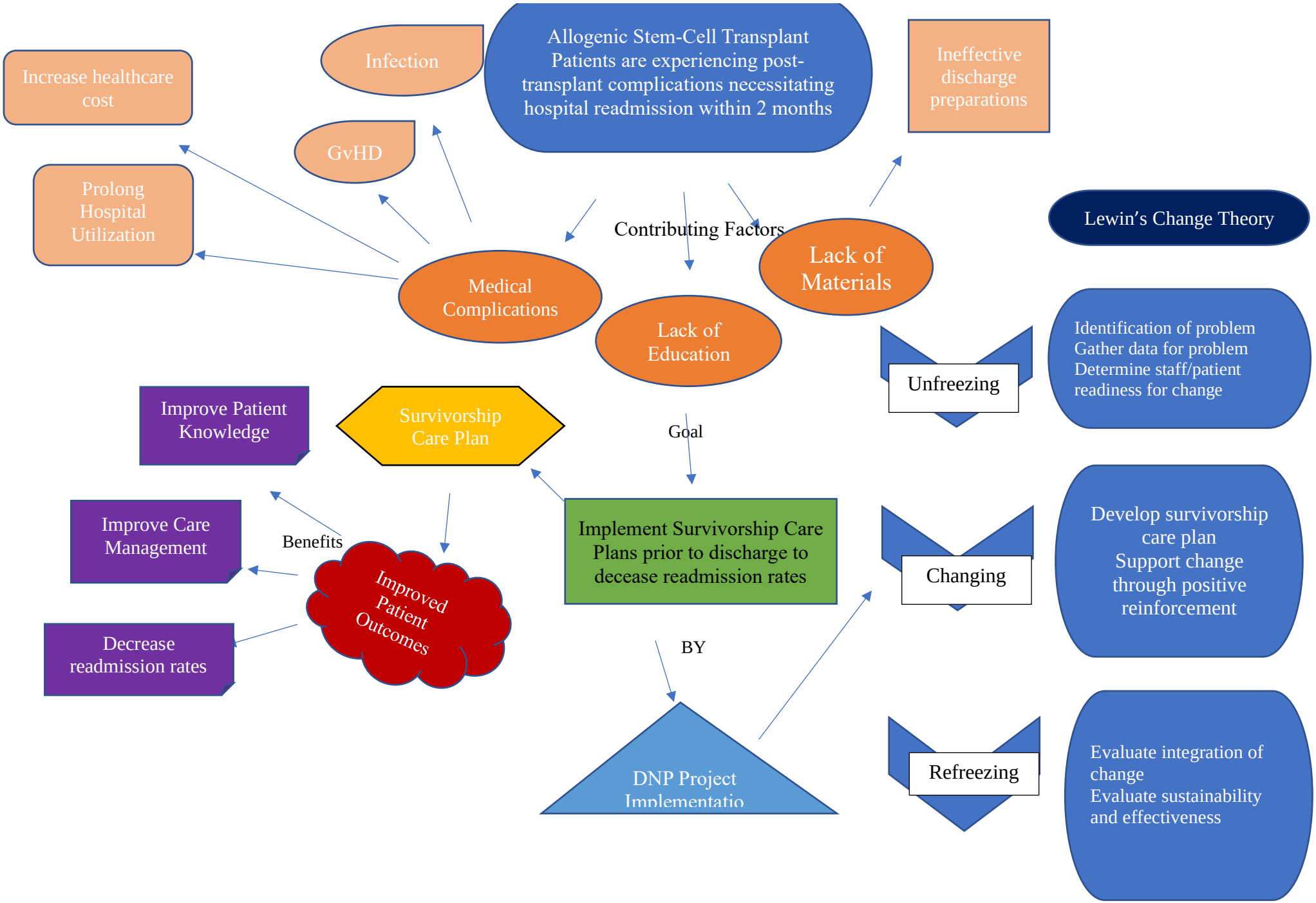
Meehan, K.										
???										
Morken, C., Tevaarwerk, A., Swiecichowski, A., Haine, J., Williams, Z.,…& Sesto, M.	2019	USA	No theory applicable	SCPs	Survivorship and clinical assessment	Retrospective review	N=29	Electronic health records	Survivorship care plans will help to improve the design for future SCPs for use by stem-cell survivors	II
Shahid, Z., He, J., Usmani, S., Grunwald, M., Ghosh, N.,…Copelan,	2019	USA	No theory applicable	Risk-factors for 100-day readmissions	Allogenic stem cell transplants	Cohort study	N=125	Data was obtained via survivor interviews	This study showed that risk factors within 100 days of discharge did not affect non-Caucasian race	III

Appendix D: Theoretical Framework

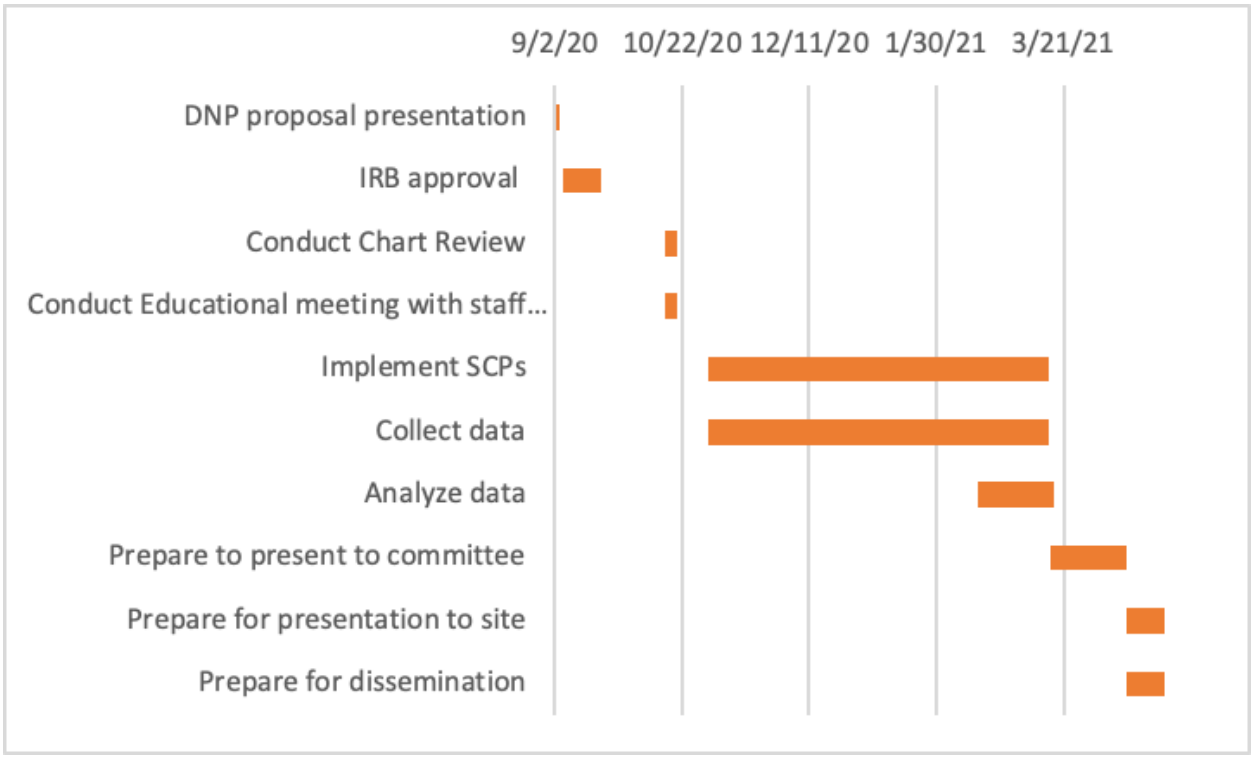
Kurt Lewin's Change Theory



Appendix E: Conceptual Model



Appendix F: Proposed Gantt Chart



Appendix G: Statement of Mutual Agreement for DNP Guidance

UNIVERSITY OF ARKANSAS
College of Education and Health Professions
Eleanor Mann School of Nursing

Appendix B: Statement of Mutual Agreement for DNP Guidance

DNP Student Name: Chantaney Williams
Clinical Site or Agency: UAMS
DNP Committee Chair: Dr Michele Kilmer
Site Champion Name & Title: Heather Kwarsin, KPRN

DNP Project Title: The Effects of a Survivorship care plan on Hospital Readmission Rates in Allogenic stem-cell Transplants

Expected On-Site Activities: in person surveys, chart review utilization, powerpoint presentation, In-service meetings, poster demonstrations, consenting patients for project, weekly meetings with chairperson & site champion.

Agency Approval for Presentations and Publications:

- How agency will be referenced: _____
- Approval granted to use agency name in presentations/ publications: _____
- Approval granted to use agency name in the University of Arkansas

  DNP Project Scholar Works online repository: _____

DNP Student Signature: Chantaney Williams Date: 9.8.20
Committee Chair Signature: Michele Kilmer, DNP, APRN, CPNP-PC Digitally signed by Michele Kilmer, DNP, APRN, CPNP-PC Date: 2020.10.07 12:41:42 -05'00' Date: _____
Site Champion Signature: _____ Date: 9-9-2020
Preceptor Signature: _____ Date: 9-9-20

9

Appendix H: Data Collection Sheets

SCP Questionnaire

Survey Link: https://uark.qualtrics.com/jfe/form/SV_0f7m7K5mdVkOIeh

Variable Name	Variable Label	Variable Type	Value and Label
Q1	We are interested in the information you have received from the survivorship care plan reviewed with you and your family prior to discharging home. This packet discussed information on preventative measures and common complications. Please answer ALL questions yourself by circling the choice(s) that best answers the question. The information that you provide will remain strictly confidential.	Text	
Q2	If you had a temperature of 100.4 or greater, would you?	Numeric	1. Notify your doctor immediately or go to the nearest emergency department 2. Take Tylenol and recheck 1 hour later 3. Use cool compresses to reduce fever 4. Do nothing because this is normal
Q3	Which best describes symptoms of infection?	Numeric	1. Temperature of 100.4 or greater 2. Shaking chills with or without fever 3. Redness, swelling, or drainage at your central line site 4. All of the above
Q4	Which best describes infection prevention?	Numeric	1. Handwashing 20-30 seconds regularly before eating, after toileting, coughing, sneezing, and touching pets

Variable Name	Variable Label	Variable Type	Value and Label
			2. Being in contact with people who are sick and contagious 3. Only bathing or showering once every 7 days with antibacterial soap 4. There is no such thing as infection prevention
Q5	Which complications are the most common after transplantation?	Numeric	1. Infection, Cytomegalovirus, and Graft versus Host Disease 2. Hepatitis A, Hepatitis C 3. Colon cancer and rectal bleeding 4. Hyperlipidemia and Hypertension
Q6	Which of these preventative measures are important?	Numeric	1. Drinking alcohol heavily with more than 2 drinks a day 2. Staying physically active (2.5 hours each week with moderate exercise) 3. Eating an unhealthy diet with plenty of fast food. 4. Sitting on the couch for 8-10 hours a day
Q7	Which best describes a scenario that should be reported to your oncologist?	Numeric	1. You should never report any symptoms 2. Exposure to chickenpox or shingles 3. A headache that resolved within 2 hours 4. An increased appetite
Q8	Which best describes common medications that you will be prescribed after your transplantation?	Numeric	1. Antivirals 2. Immunosuppressants 3. Antifungals 4. All of the above

Variable Name	Variable Label	Variable Type	Value and Label
Q9	If your central catheter site becomes painful, swollen, or red you should?	Numeric	1. Just remain calm the pain will go away 2. Try to take the dressing off to relieve the pain 3. Call the clinic or your oncologist immediately 4. Take Tylenol this is a normal reaction
Q10	This last set of questions gives us information about the type of sample we collected. Thank you for your assistance.	Text	
Q11	Select the gender identity that best represents you	Numeric	1. Male 2. Female 3. Other
Q12	Select the highest level of education you have completed.	Numeric	1. Less than high school 2. High school graduate 3. Some college 4. 2 year degree 5. 4 year degree 6. Masters' degree 7. Doctorate or professional degree
Q13	Select the race or ethnicity that best represent you	Numeric	1. White 2. Black or African American 3. American Indian or Alaska Native 4. Asian 5. Hispanic 6. Other
Q14	Please enter your age	Text	
Q15	What is your household income category?	Numeric	1. $0 - $39,999 2. $40,000 - $79,999 3. $80,000 - $119,999

Variable Name	Variable Label	Variable Type	Value and Label
			4. $120,000 or more
	Are you now married, widowed, divorced, separated, or never married?	Numeric	1. Married 2. Widowed 3. Divorced 4. Separated 5. Never married

Appendix H: Data Collection Sheets

Codebook
EORTC-QLQ-INFO25 Questionnaire

Survey Link: https://uark.qualtrics.com/jfe/form/SV_cBUQuvptiTjYYDz

Variable Name	Variable Label	Variable Type	Value and Label
Q1	We are interested in the information you have received about aspects of your disease and its treatment, in order to improve your health care. Please answer **ALL** questions yourself by *circling* the number that best applies to you. There are no right or wrong answers. The information that you provide will remain strictly confidential	Text	
Q2_1	The purpose of any medical tests you had undergone?	Numeric	1. Not at all 2. A little 3. Quite a bit 4. Very much
Q2_2	The results of the medical tests you received?	Numeric	1. Not at all 2. A little 3. Quite a bit 4. Very much
Q2_3	The medical treatment (chemotherapy, radiotherapy, or surgery)?	Numeric	1. Not at all 2. A little 3. Quite a bit 4. Very much
Q2_4	The possible side-effects of your treatment?	Numeric	1. Not at all 2. A little 3. Quite a bit 4. Very much
Q2_5	Tips of managing your illness at homes?	Numeric	1. Not at all 2. A little 3. Quite a bit 4. Very much
Q3	Did you receive written information at discharge?	Numeric	1. Yes 2. No
Q4	Do you wish to receive more information?	Numeric	1. Yes 2. No

Variable Name	Variable Label	Variable Type	Value and Label
Q5	Please specify which topics you wish to receive more information	Text	
Q6	Do you wish to receive less information?	Numeric	1. Yes 2. No
Q7	Please specify which topics you wish to receive more information	Text	
Q8	Overall has the information you received been helpful?	Numeric	1. Not at all 2. A little 3. Quite a bit 4. Very much
Q10	Select the gender identity that best represents you	Numeric	1. Male 2. Female 3. Other
Q11	Select the highest level of education you have completed.	Numeric	1. Less than high school 2. High school graduate 3. Some college 4. 2 year degree 5. 4 year degree 6. Masters' degree 7. Doctorate or professional degree
Q12	Select the race or ethnicity that best represent you	Numeric	1. White 2. Black or African American 3. American Indian or Alaska Native 4. Asian 5. Hispanic 6. Other
Q13	Please enter your age	Text	
Q14	What is your household income category?	Numeric	1. $0 - $39,999 2. $40,000 - $79,999 3. $80,000 - $119,999 4. $120,000 or more

Variable Name	Variable Label	Variable Type	Value and Label
Q15	Are you now married, widowed, divorced, separated, or never married?	Numeric	1. Married 2. Widowed 3. Divorced 4. Separated 5. Never married

Appendix I: Patient Education Materials

Blood and Marrow Transplant Survivor Care Plan

Congratulations on your allogenic stem cell transplant. Thank you for joining the Survivorship Care Plan for Allogenic Survivors study. This packet contains the following materials:

- Your personalized care plan
- Preventative Measures for Infection
- Common Complications post-transplantation
- Common Medications post-transplantation
- Activities of Daily Living Precautions

This Survivorship Care Plan includes a summary of information relevant to you and is important to share with your oncologist and other medical care providers. Your doctor may recommend or order other tests or evaluations on a different schedule based on your specific situation. Follow his or her recommendations carefully. Transplant follow-up care is important to protecting your health, even many years after transplant. Your care plan is organized in sections to better assist you with understanding each component.

For this study, treatments before your transplant are not included in this survivorship care plan, please contact your oncologist for your questions about treatment before transplant.

We will use your feedback to improve Survivorship Care Plans for the future.

Sincerely,

Chantaney Williams, University of Arkansas Mann DNP Student
Principal Investigator

Blood and Marrow Transplant Survivor Treatment Summary

For:
Date Your Treatment Summary was Created:
If you need to go to urgent care or the emergency room, it is helpful to take the care plan with you.

Your Medical Information
Date of Birth:
Sex:
Diagnosis:
Date of Diagnosis:
Your Transplant Information
Transplant center name: UAMS E7 & UAMS Winthrop R. Rockefeller Cancer Institute
Address: 4018 W Capitol Ave. Little Rock, AR 72205
Phone Number: (501) 296-1200
Transplant MD:
Date of Transplant:
Age at Transplant:
Transplant Type:
Cell source type: peripheral stem cell
Chemotherapy drugs:
Total Body Irradiation (TBI): (dose and dose unit:)

Recommendations for your Preventative Care

IMMUNE SYSTEM o Wear masks out in public places and large crowds o Avoid people who are sick or have been recently sick o Wash hands frequently 20-30 seconds with antibacterial soap or use alcohol-based hand sanitizer o Vaccines to prevent infections (once cleared by oncologist)
EYES o Wear sunglasses every time you go outside. o Vision screening once a year by your eye doctor to check how well you can see
MOUTH o Dental exam and teeth cleaning by a dentist at least once a year. o Use a soft bristle toothbrush o Brush your teeth regularly and maintain a moist mouth using mild solutions (biotene) o
LUNGS o Don't smoke or use chewing tobacco. Stay away from second-hand smoke
HEART AND BLOOD VESSELS o Blood pressure should be checked every time you visit the clinic o Blood tests to check your cholesterol level at least once a year. This includes triglycerides, LDL, and HDL
LIVER o Liver function blood test at least once a year
KIDNEYS AND BLADDER o Blood pressure should be checked every time you visit the clinic o Kidney test at least once a year including testing on protein levels in your urine.
BONES o Bone density scan test once a year
SKIN o Do a self-exam of your skin every month to check for any changes (rash, unusual growth, or patches) o Use sunscreen with SPF 15 or higher every time you go outside. Reapply at least every 2 hours, or more often if you're sweating or in and out of the water o Avoid direct sunlight. Wear a broad-brimmed hat or use a large umbrella to protect your skin. o Use an electric razor when shaving
NERVOUS SYSTEM o Clinical exam by your doctor at least once a year for changes or problems

ENDOCRINE ORGANS o Blood test to check how well your thyroid is working o Blood test to assess your sex hormones o Fasting glucose (sugar) test to check for diabetes
GENITALS AND SEXUAL HEALTH o Gynecology exam at least once a year for women o Discuss with your doctor if you are experiencing sexual side effects such as vaginal dryness, pain with sex, or difficulty having an erection
FERTILITY AND FAMILY PLANNING o If you want to have children in the future, ask your doctor to refer you to a fertility doctor
EMOTIONAL HEALTH o Going through a transplant is a very emotional experience. Your feelings and needs will change a lot, maybe even every day. It's important that you talk **openly and regularly** with your oncologist, family, and friends.
DIET AND NUTRITION o Eat a healthy diet o Keep yourself well hydrated o Avoid foods with lots of processed (fake) sugar or saturated (bad) fat
GENERAL HEALTH o Use alcohol in moderation (less than 2 drinks a day) o Stay physically active (2.5 hours each week of moderate exercise) o Avoid people that are sick or contagious
Central Catheter Line Care
Check your site daily for: o Redness o Tenderness o Leakage o Swelling o Bleeding
Call the clinic or your oncologist **right away** if: o You have redness, swelling, or drainage around the area where the catheter exists your body o Your needless connector falls off o You have a temperature of 100.4 or greater o You have a break or leak in your catheter o You have an unexplained problem with your catheter

Adapted from Memorial Sloan Kettering Cancer Center
https://www.mskcc.org/cancer-care/patient-education/leaving-hospital-after-your-allogeneic-transplant

Summary of Common Complications

Infection	S/S: • Fever (100.4) • Chills & Sweat • Shortness of breath • Burning or pain with urination • Change in cough or a new cough • Sore throat or new mouth sore
Cytomegalovirus	S/S: • Fever (100.4) • Sore Throat • Fatigue • Swollen glands
Graft versus Host Disease	S/S: • Rash, raised, or discolored area • Yellow discoloration • Nausea, vomiting, diarrhea, or abdominal pain or abdominal swelling • Dry eyes or visual changes • Dry mouth, white patches inside the mouth, pain, or sensitivity
Interstitial Pneumonitis	S/S: • Shortness of breath • Dry, hacking cough without phlegm • Extreme tiredness and weakness • Decrease or no appetite • Unexplained weight loss • Mild pain in chest • Labored breathing
Hepatic Sinusoidal Obstruction Syndrome	S/S: • Abdominal pain • Fluid retention • Jaundice • Ascites • Enlarge liver
Bleeding	S/S • Tiny, purplish-red spots on your skin • Bruising

	• Bleeding from rectal area, gum, or nose
Mucositis	S/S: • Red, shiny or swollen mouth and gums • Blood in the mouth • Sores in the mouth, gums, or tongue • Soreness or pain in the mouth or throat • Difficulty swallowing • Feeling of dryness, mild burning, or pain
Nausea & Vomiting	S/S: • Abdominal pain • Lightheadedness • Vertigo • Rapid pulse • Excessive sweating • Dry mouth
Diarrhea	S/S: • Frequent loose, watery stools • Abdominal cramps • Abdominal pain • Fever • Lightheadedness or dizziness • Dehydration
Sexual dysfunction & Infertility	S/S: • Vaginal dryness • Irregular periods or no periods • Erectile dysfunction • Decreased libido • Painful intercourse
Secondary New Cancers	S/S: • Esophageal • Gastric • Lung • Breast • Oral

Adapted from UC Davis Medical Center https://secure.ucdmc.ucdavis.edu/cancer/Specialties/stem-cell-transplant/pdf/SCTdischarge.pdf

Adapted from American Cancer Society https://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/stem-cell-transplant/transplant-side-effects.html

Common Medications Used After Transplant

This is a list of common medications used after a transplant to treat infections that can occur when the immune system and white blood cell counts are suppressed. **Your oncologist may prescribe other medications depending on your health status.

Name	Type of Drug	Why Used	Side effects
SMX/TMP (Bactrim, Septra)	Antibacterial	Used to prevent bacterial pneumonias	Rash, electrolyte disturbances, decrease in platelets
Fluconazole (Diflucan)	Antifungal	Used to treat and prevent fungal infections	Abdominal pain, liver abnormalities
Posaconazole (Noxafil)	Antifungal	Used to treat and prevent fungal infections	Liver Function abnormalities
Voriconazole (Vfend)	Antifungal	Used to treat and prevent fungal infections	Liver Function abnormalities and visual changes
Valacyclovir (Valtrex)	Antiviral	Used to treat and present herpes (HSV) viral infections	Nausea, kidney effects
Acyclovir	Antiviral	Used to treat and present herpes (HSV) viral infections	Nausea, kidney effects
Valganciclovir	Antiviral	Used to treat cytomegalovirus (CMV) and other viral infections	Decreases white blood count and nausea
Ganciclovir	Antiviral	Used to treat cytomegalovirus (CMV) and other viral infections	Decreases white blood count and nausea

Tacrolimus (Prograf)	Immunosuppressive	Used to prevent graft vs host disease (GVHD)	Increased blood pressure, tremors, kidney effects
Cyclosporine (Neoral or Gengraf)	Immunosuppressive	Used to prevent graft vs host disease (GVHD)	Increased blood pressure, tremors, kidney effects
Sirolimus (Rapamue)	Immunosuppressive	Used to prevent graft vs host disease (GVHD)	Liver effects, increased triglycerides
Mycophenolate mofetil (Cellcept)	Immunosuppressive	Used to prevent graft vs host disease (GVHD)	Decreased blood counts, nausea
Prednisone (Deltasone)	Anti-inflammatory/Immunosuppressive	Used to prevent graft vs host disease (GVHD) and other inflammatory conditions	Insomnia, increased blood sugar, bone effects
Ondansetron (Zofran)	Anti-nausea	Used to treat and prevent nausea	Constipation and headache
Prochlorperazine (Compazine)	Anti-nausea	Used to treat and prevent nausea	Drowsiness
Lorazepam (Ativan)	Anti-nausea	Used to treat and prevent nausea	Drowsiness and dizziness

References

The Centers for Diseases Prevention and Control (2000). https://www.cdc.gov/mmwr/preview/mmwrhtml/rr4910a1.htm

UNC Cancer Care. (2012). https://unclineberger.org/files/2018/10/allogenic.pdf

Activities of Daily Living Education

Discharging Home from the Hospital: Transplant team members will provide you with the information about your post-transplant care. It is important to ask questions and take notes. Some common guidelines regarding discharge planning and home care are listed below:

- **General Protection:** Wear a mask at all times while in public and visiting the hospital property, especially in waiting rooms. Wash hands for 20-30 seconds or use hand sanitizer regularly before eating, after toileting, coughing, sneezing, and touching pets
- **A clean home:** Your home should be thoroughly cleaned at least a few days before you are discharged due to your risk for infection. Special attention should be given to the floors, carpets, bathtubs, sinks and toilets. Have the filter on your ventilation system changed to decrease dust and dirt. **You are not allowed to clean:** Let your family and friends clean for you and please stay out of the room they are cleaning. Cleaning should be done on a regular basis.
- **Do not share:** Use your own utensils, towels and toothbrush. Clean bath towels and linens regularly in HOT water.
- **Plants and Flowers:** Limit the number of plants and flowers in your house. DO NOT take care of them. Allow your caregiver to water and re-pot them. You should avoid caring for plants and gardening for six months and during periods of substantial immunosuppression. Once you are able to garden, you must use garden gloves and we recommend wearing a mask.
- **Pets:** You can keep your pets in your home, and you CAN pet them. Remember to wash your hands afterwards. DO NOT clean litter boxes, bird cages, fishbowls, etc. DO NOT handle animal excretions for at least 1-year post-transplant

Infection Prevention: At any time when a stem cell transplant patient develops a **temperature 100.4 or greater** call your oncologist or go to the nearest emergency department. **DO NOT** take any Aspirin, Acetaminophen (Tylenol), or Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) without consulting with your oncologist.

Infection & Neutropenia: Infection is the most common side effect of transplantation. This is due to the destruction of white blood cells (that help fight infection) by chemotherapy. Infections can come from the environment, but the most common source of infection is bacteria originating from the patient's own body. It is recommended that allogeneic transplant patients follow the guidelines listed below to prevent infection:

- bathe or shower daily with antibacterial soap
- good oral hygiene with mouth care to be done as prescribed

- cleanse rectal area after each bowel movement
- avoid contact with people who have colds, flu, chicken pox, or any other contagious disease
- handwashing 20-30 seconds regularly before eating, after toileting, coughing, sneezing, and touching pets
- take antibiotics/antivirals/antifungals as prescribed

Calling the Transplant Team

If you do get an infection, your doctor should be notified **immediately.** The following is a list of signs and symptoms that **should be** reported:

- A temperature greater than 100.4 degrees F.
- A persistent cough.
- Shaking chills with or without fever.
- Persistent nausea and vomiting.
- Persistent pain.
- Diarrhea, constipation or pain with bowel movements.
- Shortness of breath.
- Excessive fatigues, irritability, or lethargy.
- Chills that occur after your central line is flushed.
- Redness, swelling, drainage, or tenderness at your catheter site.
- Pain, burning, or increased frequency with urination.
- Sores in the mouth or throat.
- Any sore or wound that does not heal.
- Swelling in any area after injury.
- Unusual vaginal discharge or itching.
- Development of a rash on your skin.
- Presence of blood when vomiting.
- Blood in your urine or stools (red or black).
- Persistent nausea, vomiting, constipation, or diarrhea.
- Exposure to chicken pox.
- Sudden bruises or hives.
- Headache that persists or any severe headache.
- Blurry vision.
- Persistent dizziness.

Call 911 in an emergency situation.

References: The Centers for Diseases Prevention and Control (2000). https://www.cdc.gov/mmwr/preview/mmwrhtml/rr4910a1.htm
Adapted from UC San Diego Health. https://health.ucsd.edu/specialties/cancer/programs/hematologic/BMT/Documents/PH1156.pdf

Appendix J: Needs Assessment Questionnaire with Analysis

Needs Assessment Questionnaire

The purpose of this questionnaire is to gather information regarding the care of patients who undergo allogenic stem cell transplantation. This information will be used to help improve patient health outcomes post-transplant once discharged from the hospital. All of the information collected from this survey will be kept confidential. This questionnaire should take approximately 15-20 minutes to complete.

Role: Administration (1), MD (1), CSM (1), APRN (2), RN (4)
Employment Status: Full time (9)

1. **What causes patients to be re-admitted or seen acutely ill following procedures?**
   - Uncontrolled Nausea & Vomiting
   - Diarrhea
   - Failure to thrive

2. **What are the most common complications experienced by patients readmitted after allogenic stem cell transplant?**
   - Infection
   - C-Diff
   - Elevated LFTs
   - Graft vs Host Disease

3. **What changes can be made to improve patient health outcomes?**
   - Frequent Readmissions
   - Inadequate Self Care knowledge
   - Workload demand for RNs
   - Failure to recognize high-risk patients
   - Ineffective discharge planning
   - Lack of resources and education

4. **What aspects of the discharge process need to be improved?**
   - Preventative Care Measures
   - Personalized Education to patient and family
   - When to seek medical care
   - Transplant knowledge

5. **Are allogenic patients are given all the tools needed to be successful at home following discharge**? **If no, explain why.** (Examples: proper education related to medications, health, diet, etc.).
   - No reported by 75% of nurses because there is no standardized discharge process that provides the necessary materials that patient's need
   - Yes

6. **Are staff members prepared to make changes in terms of a standardized discharge process?**
   - Yes reported by 100% staff and stakeholders
   - No

7. **Do you feel that management will support ideas to improve the discharge process to reduce readmissions**?
   - Yes (100%)
   - No (0%)

8. **Are you willing to help implement a change using a standardized discharge process?**
   - Yes (100%)
   - No (0%)

Appendix J: **Survivorship Care Plan Questionnaire**

We are interested in the information you have received from the survivorship care plan reviewed with you and your family prior to discharging home. This packet discussed information on preventative measures and common complications. Please answer **ALL** questions yourself by circling the choice(s) that best answers the question. The information that you provide will remain strictly confidential. Demographic information is needed to help with future research.

1. If you had a temperature of 100.4 or greater, would you?
    - Notify your doctor immediately or go to the nearest emergency department
    - Take Tylenol and recheck 1 hour later
    - Use cool compresses to reduce fever
    - Do nothing because this is normal

2. Which best describes symptoms of infection?
    - Temperature of 100.4 or greater
    - Shaking chills with or without fever
    - Redness, swelling, or drainage at your central line site
    - All of the above

3. Which best describes infection prevention?
    - Handwashing 20-30 seconds regularly before eating, after toileting, coughing, sneezing, and touching pets
    - Being in contact with people who are sick and contagious
    - Only bathing or showering once every 7 days with antibacterial soap
    - There is no such thing as infection prevention

4. Which complications are the most common after transplantation?
    - Infection, Cytomegalovirus, and Graft versus Host Disease
    - Hepatitis A, Hepatitis C
    - Colon cancer and rectal bleeding
    - Hyperlipidemia and Hypertension

5. Which of these preventative measures are important?
    - Drinking alcohol heavily with more than 2 drinks a day
    - Staying physically active (2.5 hours each week with moderate exercise)
    - Eating an unhealthy diet with plenty of fast food.
    - Sitting on the couch for 8-10 hours a day

6. Which best describes a scenario that should be reported to your oncologist?
    - You should never report any symptoms

- Exposure to chickenpox or shingles
- A headache that resolved within 2 hours
- An increased appetite

7. Which best describes common medications that you will be prescribed after your transplantation?
    - Antivirals
    - Immunosuppressants
    - Antifungals
    - All of the above

8. If your central catheter site becomes painful, swollen, or red you should?
    - Just remain calm the pain will go away
    - Try to take the dressing off to relieve the pain
    - Call the clinic or your oncologist immediately
    - Take Tylenol this is a normal reaction

Appendix K: EORTC-QLQ-INFO25 QUESTIONNAIRE

We are interested in the information you have received about aspects of your disease and its treatment, in order to improve your health care. Please answer **ALL** questions yourself by *circling* the number that best applies to you. There are no right or wrong answers. The information that you provide will remain strictly confidential.

During your stem cell transplant hospitalization, how much information did you received on:

		Not at all	A little	Quite a bit	Very much
1.	The purpose of any medical tests you had undergone?	1	2	3	4
2.	The results of the medical tests you received?	1	2	3	4
3.	The medical treatment (chemotherapy, radiotherapy, or surgery)?	1	2	3	4
4.	The possible side-effects of your treatment?	1	2	3	4
5.	Tips of managing your illness at home?	1	2	3	4

6. Did you receive written information at discharge? **Yes** **No**

7. Do you wish to receive more information? **Yes** **No**

a. If yes, please specify on which topics?

_____

_____

8. Do you wish that you had received less information? **Yes** **No**

a. If yes, please specify on which topics?

_____

		Not at all	A little	Quite a bit	Very much
9.	Overall has the information you received been helpful?	1	2	3	4

Adapted from https://www.eortc.be/qol/INFO25/INFO25%20English.pdf

Appendix L: Pre-Transplant Script

Hello _____,

My name is Chantaney Williams and I am a doctoral nurse practitioner student at the University of Arkansas. I am working here at UAMS in Little Rock, AR to begin a survivorship care plan program following allogenic stem cell transplantations. Previously, patients have been discharged from the hospital with no additional information given about post-transplantation care, but current research indicates survivorship care plans are helpful with follow-up care and additional information on ways to reduce coming back to the hospital. The purpose of this project is to decrease 30-day readmissions to the hospital among allogenic stem cell transplant patients, allowing you to have information at your fingertips about common complications, preventative measures, and decreasing the cost of readmissions from your transplant procedure.

Because you are scheduled for a stem cell transplant, your participation would include a short knowledge test prior to discharge and receiving a survivorship care plan prior to going home. In the outpatient oncology clinic, you will receive two questionnaires at your initial visit and then one questionnaire once weekly for three weeks. Your participation would be greatly appreciated in efforts to improve our stem cell program. Your willingness to participate in this project will help with future efforts of improving our program for the future.

Would you be willing to participate in this project?

Thank you for your time,

Chantaney Williams, University of Arkansas Mann DNP Student

Appendix M Discharge Script

Hello _____,

Please take 10-15 minutes to complete this short SCP Questionnaire that will be used as a tool to help with future research to improve the Survivorship Care Plan. This questionnaire is seeking to assess your level of knowledge on preventative measures and complications post-transplantation. If you have any questions or need clarification, please do not hesitate to ask.

This survivorship care plan consists of information that is pertinent to your allogenic stem cell transplant. This packet can be shared between you and your oncologist to help make decisions about your care. Transplant follow-up care is important to protecting your health. This packet contains your personalized care plan, steps you can take to get the most out of your care plan, and how to get your questions answered. Additional information is provided on preventative measures, common complications, and common medications. Your survivorship care plan is organized in sections to better assist you with finding the information needed once discharged.

Please take time review this information again at home and familiarize yourself with tips you can use to prevent infections and decrease your chances of being readmitted to the hospital. If you have any questions, please feel free contact the oncology clinic or ask your oncologist. Thank you for participating in the Survivorship Care Plan program. We hope the efforts of this project will serve as a reference point upon your discharge.

Thank you for your time,

Chantaney Williams, University of Arkansas Mann DNP Student

Appendix N: Consent Form

The Effects of a Survivorship Care Plan on Hospital Readmission Rates in Allogenic Stem Cell Transplant Patients

PRINCIPAL INVESTIGATOR
Chantaney Williams
University of Arkansas Eleanor Mann School of Nursing
606 N. Razorback Rd.
1-479-575-3904
crw048@uark.edu

FACULTY ADVISOR
Dr. Michele Kilmer
University of Arkansas Eleanor Mann School of Nursing
606 N. Razorback Rd.
1-479-575-3581
michelekl@uark.edu

PURPOSE OF PROJECT

You are being asked to take part in a Doctoral Nursing Practice (DNP) project. Before you decide to participate in this project, it is important that you understand why the project is being done and what it will involve. Please read the following information carefully. Please ask the principal investigator if there is anything that is not clear or if you need more information.

The purpose of this project is to reduce 30-readmission rates among allogenic stem cell transplant (SCT) post transplantation by evaluating post-transplantation education via a survivorship care plan (SCP) with a survey at two days, one week, two weeks, and three weeks after discharge.

The aim for this project is to utilize survivorship care plans for allogenic stem cell transplant patients prior to hospital discharge in order to reduce 30-day readmission rates. Following protocol implementation, this project expects to track readmission rates in efforts to reduce readmission rates among allogenic patients by 10% by March 2021.

PROJECT PROCEDURES

The following is the suggested procedures that will take place:

- Patient will be complete a survivorship care plan questionnaire prior to discharge
- Patient will be provided with survivorship materials upon discharge on the common complications and preventative measures
- Patient will participate in weekly follow-up survivorship questionnaires for three weeks in the outpatient clinic
- Patient will receive a follow-up phone call if outpatient clinic appointment is missed

- Data recorded for your medical record will include demographic data, number of readmissions, readmission diagnosis, complications within 30 days of discharge, interventions implemented to prevent readmission, complications treated, length of stay with readmission**,** the number of attended visits in the outpatient clinic, and the number of missed appointments in the outpatient clinic

RISKS

There should be very minimal risks for this project however, emotional and psychological strains can occur. There is a low risk of stress and anxiety for yourself and caregiver assuming care responsibility at home.

BENEFITS

Benefits to participating in this project include:

- Decreasing 30-day readmission rates
- Prevention of complications post-transplant
- Increase patient understanding of common complications and preventative measures
- Decreased cost for patients and hospital associated with 30-day readmissions

CONFIDENTIALITY

Participation in this study includes gathering information that could identify you and your personal health information. This information will be kept only for the length of the study (six months). After that time, it will be destroyed or de-identified, meaning we will replace your identifying information with a code that does not directly identify you. The principal investigator will keep a link that identifies you to your coded information, but this link will be kept secure and available only to the principal investigator. Any information that can identify you will remain confidential.

To assure patient confidentiality, the principal investigator will keep data in a computer that is password protected. Notes, interview transcriptions, and any other identifying participant information will be secured in a locked file cabinet in the personal possession of the principal investigator.

Participant data will be kept confidential to the extent allowed by law and University policy. The researcher is legally obligated to report specific incidents which include, but may not be limited to, incidents of abuse and suicide risk.

CONTACT INFORMATION

If you have questions at any time about this project, or you experience adverse effects as the result of participating in this project, you may contact the principal investigator, whose contact information is provided on the first page. If you have questions regarding your rights as a study

participant, or if problems arise which you do not feel you can discuss with the Principal Investigator, please contact the University of Arkansas Institutional Review Board at 1-479-575-2208.

VOLUNTARY PARTICIPATION

Your participation in this project is voluntary. It is your decision whether or not to take part in this project. If you decide to take part in this project, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this project will not affect the relationship you have, if any, with the principal investigator. If you withdraw from the project before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this project.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix O: Copy of Approval Letters

From: no-reply@eortc.be <no-reply@eortc.be>
Sent: Monday, July 6, 2020 1:22 AM
To: Chantaney Williams <crw048@uark.edu>
Subject: Your request for an EORTC-questionnaire Request ID : 68956

Dear chantaney williams,
Thank you for registering on the EORTC Quality of Life Group website.
Your registration to obtain permission to use our tools has been approved. During the registration process you agreed to our terms and conditions regarding the academic use of our questionnaires. You can review the terms and conditions here.
Please find below the links to the requested tools:
Information Module (INFO25) - English

Scoring Manuals:

Appendix P: Copy of Site's IRB Approval

Institutional Review Board
4301 West Markham, #636
Little Rock, AR 72205-7199
501-686-5667
501-686-7265 (fax)
http://irb.uams.edu/

FWA00001119

10/16/2020

PI Name: Williams, Chantaney
PI Department: ICE NRSL Medical Onc & Transplant
Number: 261885

Project Title: The Effects of a Survivorship Care Plan on Hospital Readmission Rates in Allogenic Stem Cell Transplant Patients

NOT HUMAN SUBJECT RESEARCH DETERMINATION

The Institutional Review Board Director or Designee reviewed your material and determined that this project is NOT human subject research as defined in 45 CFR 46.102, and therefore it does not fall under the jurisdiction of the IRB review process.

Committee Notes/Comments:

- Per the information provided, this is implementation of a care initiative primarily intended to improve local patient outcomes (as opposed to primarily intended to create generalizable knowledge). As such, this does not meet the definition of human subjects research and IRB oversight is not required.

Please keep the IRB advised of any changes that may require the project to be re-classified as human subject research.

If you have any questions, please contact an IRB administrator at 501-686-5667.
Click here to access study.
Error! Filename not specified.

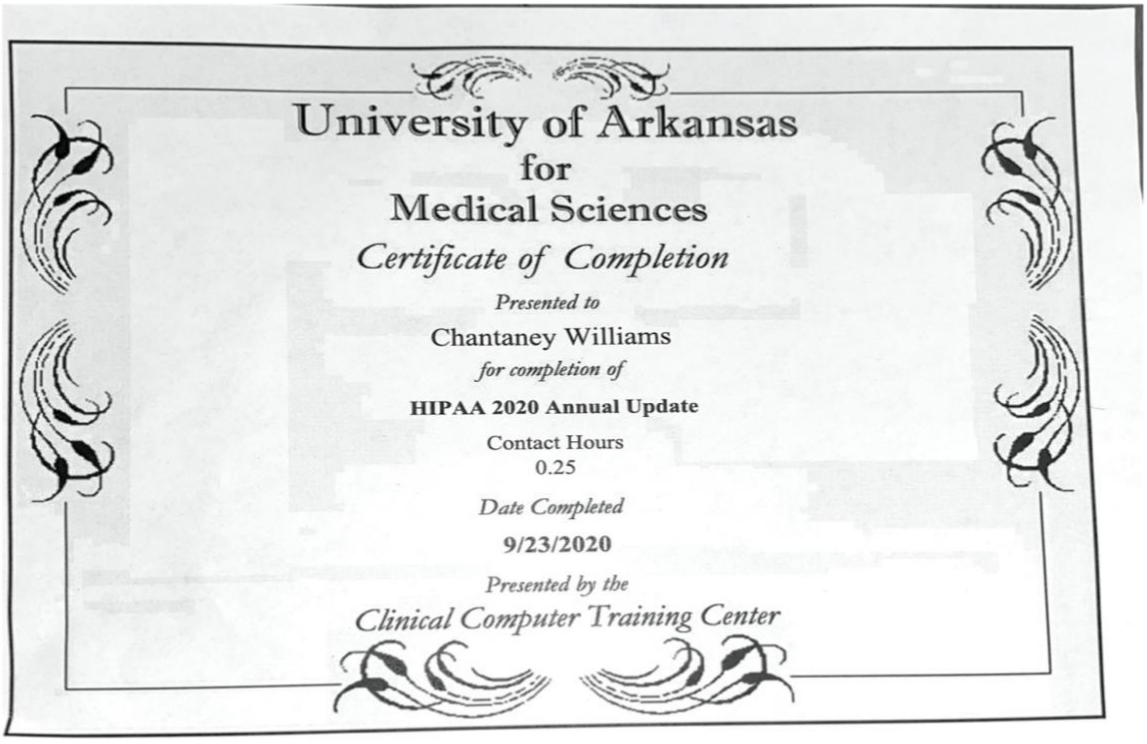
Appendix Q: Copy of Approval Letters

Streamlyne Research <production-research@uasys.streamlyne.org>
Mon 1/11/2021 9:43 AM
Your Action List has an eDoc(electronic document) that needs your attention:

Document ID: 181610
Initiator: System, Notification
Type: Add/Modify KcNotificationDocument
Title: Protocol 2010293729 is Approved as Exempt

To respond to this eDoc:
Go
to https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fresearch.uasys.streamlyne.org%2Fken%2FDetailView.form%3FdocId%3D181610%26command%3DdisplayActionListView&data=04%7C01%7Ccrw048%40uark.edu%7C8c79d6560000406a750208d8b647ac1b%7C79c742c4e61c4fa5be89a3cb566a80d1%7C0%7C0%7C637459766228648838%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=DIVOmcxnnmrqA9S8t8l55IkVo%2FHBZCjcXBrtYn4EraY%3D&reserved=0

Appendix R: HIPAA Completion Forms



University of Arkansas
for
Medical Sciences

Certificate of Completion

Presented to

Chantaney Williams

for completion of

HIPAA 2020 Annual Update

Contact Hours
0.25

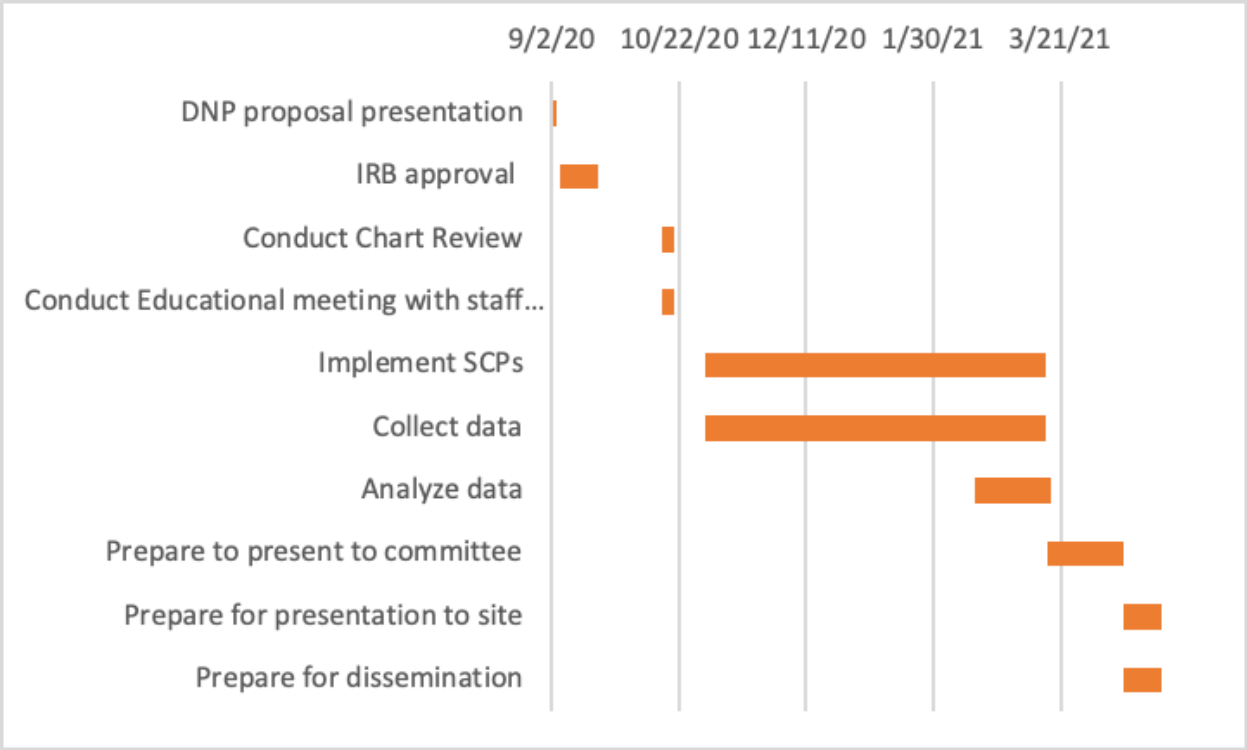
Date Completed

9/23/2020

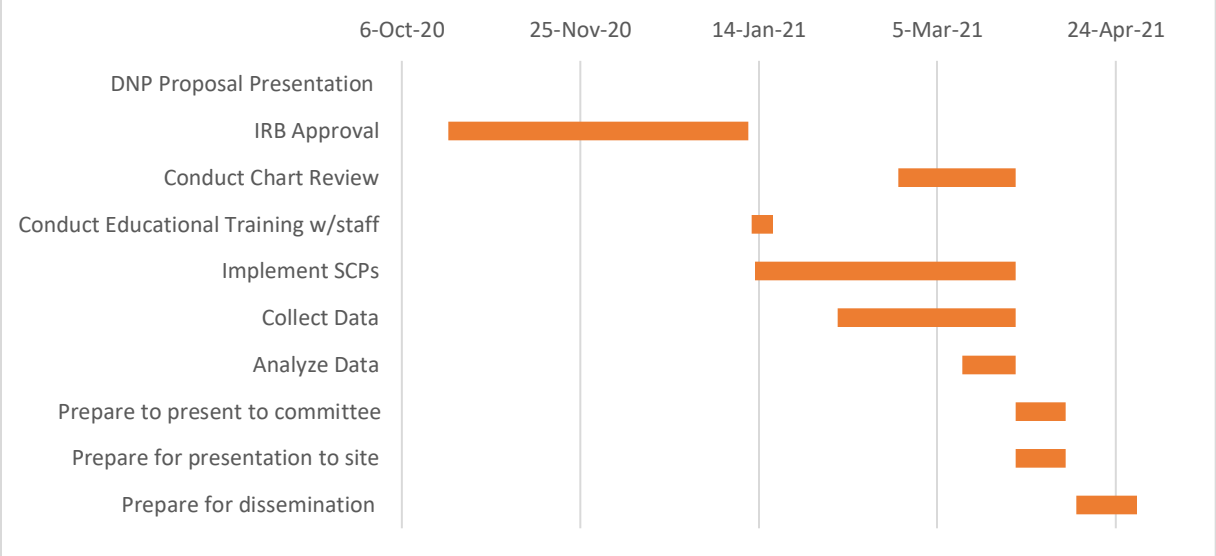
Presented by the

Clinical Computer Training Center

Appendix S. Proposed Gantt Chart



Appendix S: Final Gantt Chart



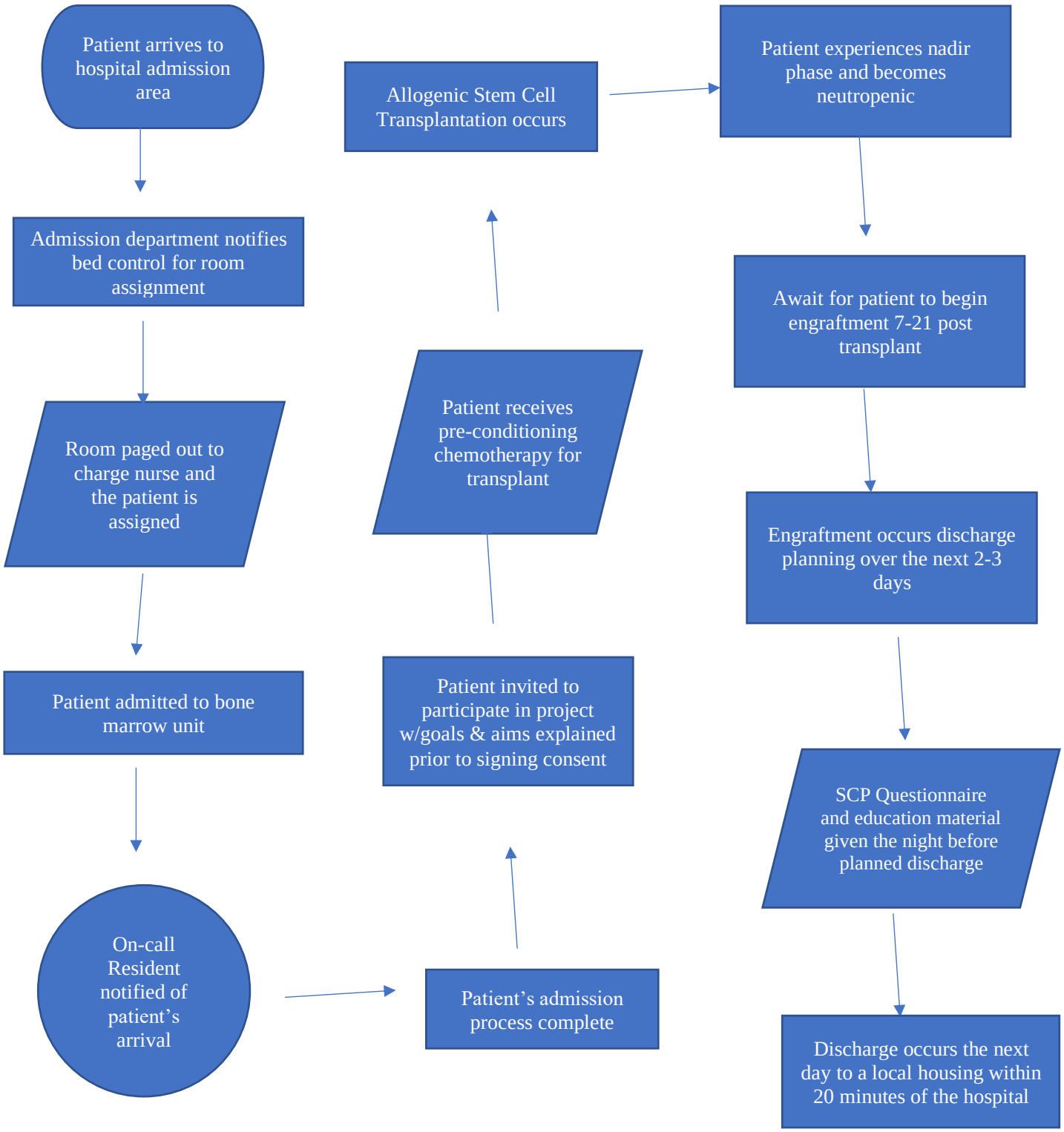
Appendix T: Implementation Timeline

Implementation Timeline	Progress	New Changes
1/11/2021	Received IRB Approval	
1/12/2021	Implementation process began Nursing education/consent/training Open to accepting new	
1/13/2021	First SCT participant to enroll in project	
1/14/2021	Two SCT participants were enrolled in project	
1/18/2021	One SCT participant enrolled in project	
1/21/2021	*Weekly team meetings* One SCT participant enrolled in project	
1/29/2021	*Weekly team meetings*	*PDSA Cycle: Inpatient Staff and Consenting. Clarification of when to receive signed consents
2/3/2021	Two SCT participant enrolled in project	
2/4/2021	Weekly team meetings*	
2/5/2021	*Weekly clinic team meeting*	*PDSA Cycle: Decreased Nurse Participation. Incentive measures put in place to increase staff participation

2/7/2021 2/14/2021 2/17/2021 2/19/2021 2/22/2021 2/24/2021 3/1/2021 3/2/2021 3/4/2021	*Weekly team meeting* *Weekly clinic team meeting* One SCT participant enrolled in project *Weekly team meetings* One SCT participant enrolled in project One SCT participant enrolled in project *Weekly team meetings* One SCT participant enrolled in project *Weekly team meetings*	*PDSA Cycle* New Discharge Process implemented the SCP questionnaire the night prior to discharge Data collection began as patients begin to discharge after 30-days post-transplantation *PDSA Cycle* Outpatient follow-up appointments occurred with implementation of SCP Questionnaire & EORTC-QLQ 25 Questionnaire during initial appointments.
3/7/2021	Last day to enroll participants	Enrollment and consent period ends for implementation
3/8/2021	*Weekly team meetings*	

3/15/2021	*Weekly team meetings*	
3/23/2021 3/27/2021	*Weekly team meetings* End of implementation period	All final data collected from outpatient setting to be entered into Qualtrics
4/13/2021	DNP Intensive presentation to CON	
4/28/2021	Presentation at Academic Facility	
5/2/2021	Dissemination of Results	

Appendix U: Proposed Flow Chart



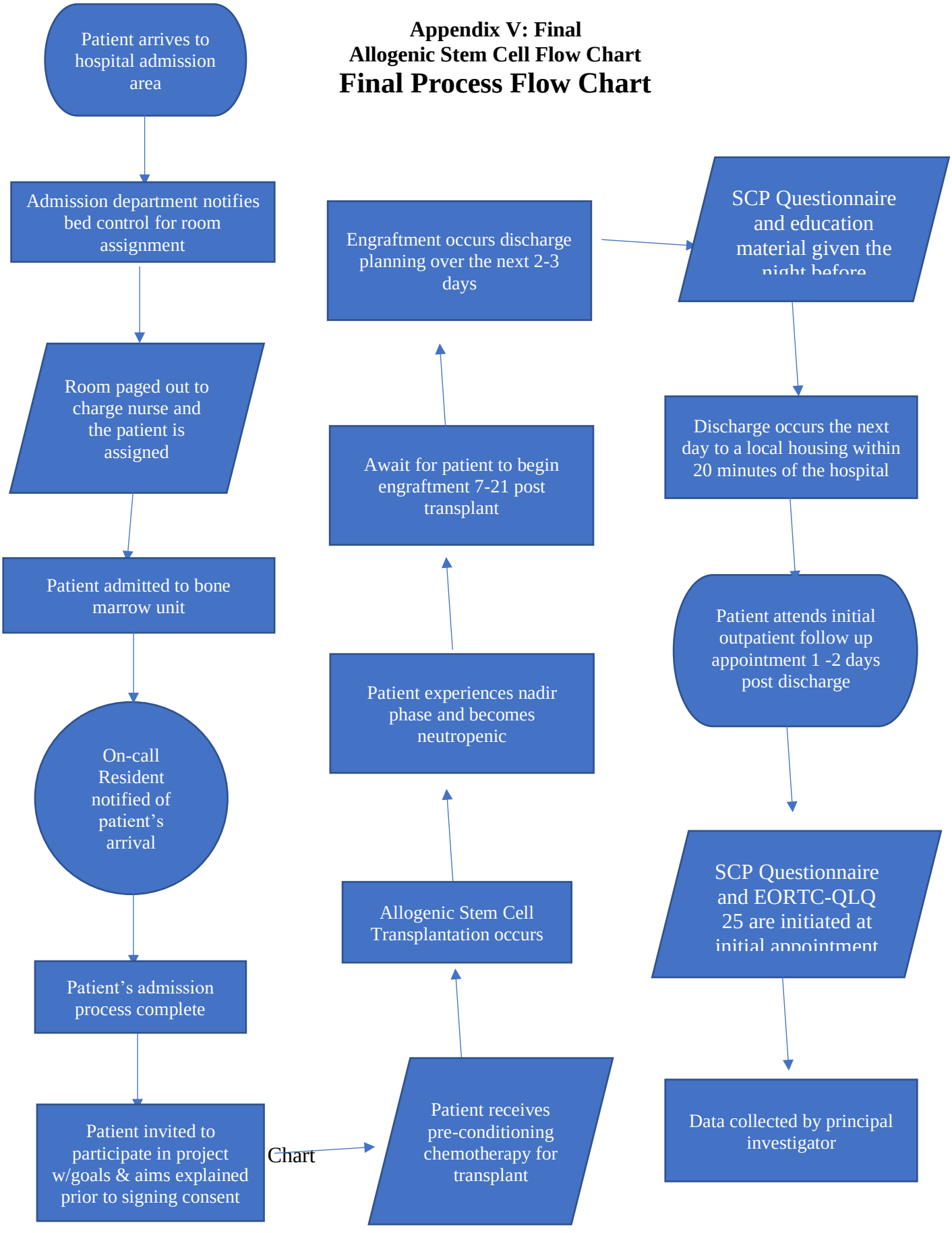
Key Code:

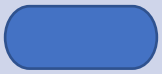
Symbol	Name	Function

	Oval	Represents a start and end point
	Arrows	Represent a connection between two related points
	Parallelogram	Represents input/out
	Square	Represents a process
	Circle	Represents a decision

Appendix V: Final
Allogenic Stem Cell Flow Chart

Final Process Flow Chart



Symbol	Name	Function
	Oval	Represents a start and end point
	Arrows	Represent a connection between two related points
	Parallelogram	Represents input/out
	Square	Represents a process
	Circle	Represents a decision

Appendix W: Final Chair Approval

College of Education and Health Professions
Eleanor Mann School of Nursing

Appendix M: DNP Project Final Paper Evaluation Rubric

Project Title: The Effects of a Survivorship Care Plan on Hospital Readmission Rates in Allogenic Stem Cell Transplant Patients

Student Name: Chantaney Williams Faculty Chair: Michele Kilmer, DNP, APRN, CPNP-PC

Date: April 10, 2021

	Satisfactory as presented	**Unsatisfactory with the following recommendations**
Abstract		
Summarizes content of project	**X**	
Includes an overview of the project's background and review of literature, purpose, method, results, and conclusion	**X**	
Contains approximately 250 words		
Uses keywords	**X**	
Background and Significance		
Background information demonstrates the focused need or problem	**X**	
Includes global, national, state, and local data if applicable	**X**	
Problem and change idea are clearly identified	**X**	
Need, feasibility and significance are clearly presented	**X**	
Problem Statement		
Problem clearly described in one sentence	**X**	
Problem is specific to clinical site	**X**	
Problem is supported by literature	**X**	
Purpose Statement		
Purpose clearly described in one sentence	**X**	
Details are provided to support the purpose statement	**X**	
Scope of project realistic and appropriate	**X**	
PICOT Question		
PICOT Question relates to project	**X**	
PICOT Question follows template	**X**	
PICOT Question clearly stated	**X**	
Needs Assessment		
Description for how need for project was determined	**X**	

Includes agency data supporting project	**X**	
Compares global, national, state, and local data with site data	**X**	
Includes Global Aim agreement	**X**	
Includes Process Flowchart	**X**	
Objectives and Aim		
Explains overarching aim of project	**X**	
Describes objectives to support the project aim	**X**	
Review of Literature		
Literature review supports significance/relevance of problem/ project/intervention	**X**	
Literature review presents an in-depth current state of knowledge	**X**	
Concepts are integrated and synthesized	**X**	
Trends, patterns, gaps, or relationships in concepts are identified	**X**	
Evidence Table provides context for project purpose and intervention	**X**	
Statistical information is presented	**X**	
Explanation of how project will address identified concerns	**X**	
Theoretical Framework		
Framework concepts are explained and detailed in relation to the project process	**X**	
Concept map is included	**X**	
Project Description		
Project objectives stated in feasible and measurable terms	**X**	
Congruence of organizations' strategic plan to project is described	**X**	
Project Design		
Project design is clearly stated	**X**	
Design is appropriate for objectives	**X**	
Clear rationale for actions/method	**X**	
Setting is clearly described	**X**	
Study population is clearly described	**X**	
Study intervention, implementation and methods/tools are feasible and clearly described	**X**	
Study instruments are described and included	**X**	
Data parameters are explained	**X**	
Resources/supports are detailed	**X**	

Risks/threats and benefits are noted	**X**	
Methods for subject recruitment is explained	**X**	
Materials for subject recruitment is provided	**X**	
Consent procedures are explained, and informed consent form is provided	**X**	
Subject costs and compensation is detailed	**X**	
Timeline is clearly described and feasible	**X**	
Budget is provided	**X**	
Implementation Phase		
Describes the implementation process as it unfolded	**X**	
Notes any changes from proposal timeline and gives rationale for changes	**X**	
Outlines process cycles, detailing changes encountered and how they were addressed	**X**	
Details contextual elements that interacted with the intervention	**X**	
Identifies deviations in implementation period and gives rationale for changes	**X**	
Discusses results of any actions taken to address challenges	**X**	
Discusses interprofessional team dynamics	**X**	
Compares new process flow chart to original flow chart, noting if improvements resulted from intervention	**X**	
Includes table depicting steps of intervention and their evolution over time with modifications made during the project	**X**	
Evaluation of Results		
Assesses process measures and how they affected project results	**X**	
Uses data and/or statistical analysis to evaluate outcome measures	**X**	
Discusses missing data, if applicable	**X**	
Method of analysis clearly described for each outcome measurement	**X**	
Identifies variation within the data, if applicable	**X**	
Project results are clearly connected with intervention	**X**	

Describes any unintended consequences such as unexpected benefits, problems, failures, or costs associated with project intervention	**X**	
Evaluation is coherent and consistent with project plan	**X**	
Evaluation measures linked to project objectives	**X**	
Discussion		
Discusses impact of the project on people and systems	**X**	
Discusses results in context of other studies or quality improvement projects in the literature	**X**	.
Discusses possible reasons for any differences between observed and anticipated outcomes	**X**	
Discusses economic and cost benefits of project	**X**	
Explains strategic trade-offs if applicable	**X**	
Limitations		
Identifies factors that may have affected the project results	**X**	
Identifies and discusses factors that might limit transferability to other organizations or systems	**X**	
Identifies factors that may have affected the internal validity such as confounding, bias, or imprecision in the design, methods, measurement, or analysis	**X**	
Identifies efforts made to minimize and adjust for limitations	**X**	
Sustainability		
Details usefulness of project	**X**	
Addresses how the intervention will continue now that project is completed	**X**	
Recommendations		
Suggests next steps of potential follow-up projects	**X**	
Explains project impact on healthcare quality and safety	**X**	
Identifies health policy implications	**X**	
Dissemination		
Plan for disseminating project results to agency is detailed	**X**	
Plan for disseminating project results professionally is detailed	**X**	
Conclusion		

Makes a statement about the overall results of the project	**X**	
Lists key findings, including relevance to project's aim	**X**	
Identifies strengths of the project	**X**	
Project's contribution to nursing practice knowledge is addressed	**X**	
Implications for nursing practice, patient care, or health care delivery and future interventions related to problem and purpose	**X**	
References		
Current and accurate reference list present	**X**	
Approvals		
Letters of support/Statement of Mutual Agreement from cooperating agencies provided	**X**	
Informed consent, if necessary, meets human subject requirements	**X**	
Approvals are provided as appendices	**X**	
Writing and organization		
APA format followed appropriating; writing is scholarly and clear; appropriate for doctoral level education	**X**	
Paper is submitted to plagiarism software prior to presentation; copy of plagiarism report is included	**X**	

Committee comments:

_____

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_____

Overall Evaluation of the DNP Project Final Paper

__X___ Accept final paper

_____Require the following revisions:

_____

_____

_____

_____

Signature of Chair on behalf of the Committee:

Michele Kilmer, DNP, APRN, CPNP-PC Date: April 19, 2021

Student Signature:

____ Date: ________________________________