



Development and Implementation of a Standardized, Electronic Oncology Nurse Navigator

Metrics Tool

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DEDICATION

I'm dedicating my work to my heavenly father and soulmate Arul V Raj, the blessing and love of my life, who is my source of motivation, strength, and support throughout the journey.

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I will give thanks to the Lord because of his righteousness; I will sing the praises of the name of the Lord Most High, Psalms 7:17. Heartfelt gratitude to my heavenly father for his amazing grace and abundant mercy throughout my life and DNP journey.

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Executive Summary

Oncology Nurse Navigation aims to reduce cancer morbidity and mortality by eliminating barriers to timely access to cancer care. These barriers may be financial, psychological, social, or logistical, or they may be related to communication, language, literacy, or equity of health care delivery (Oncology Nursing Society, 2018). The Academy of Oncology Nurse and Patient Navigators (AONN+) is the largest national specialty organization dedicated to improving patient care and quality of life by defining, enhancing, and promoting the role of oncology nurses and patient navigators. AONN+ identified 35 evidenced-based navigation metrics relevant to cancer patient navigation (Appendix A) and developed a toolkit recommending healthcare organizations evaluate and select the most appropriate metrics. The standardized tool aids in measuring programmatic success and coordinating high-quality, team-based care, which is integral to demonstrating the sustainability of navigation programs.

This DNP project aimed to create and implement a standardized, evidence-based, electronic oncology nurse navigator metrics tool for use across various oncology specializations in the ambulatory services department at a university-based healthcare center. The navigation metrics tool was developed after reviewing the AONN+ recommendation. The goal of tool development and implementation was to combat unorganized and non-standardized data collection methods among the navigator team. Furthermore, the tool would inform patient navigation and clinical outcomes, encourage quality improvement initiatives, and inform return on investment, demonstrating the nurse navigator's value and position in the organization.

Data were analyzed from 1,156 patients entered from December 7, 2021, to April 25, 2022, demonstrating standardized use of the tool for effective oncology case management. The tool enabled the collection of multiple data points for evaluating navigation program efficiency

and for identifying areas for process improvements. Real-time digital data availability provided baseline information to guide quality improvement initiatives, inform patient outcomes, and demonstrate to leadership the value and contributions of oncology nurse navigation in ensuring a seamless cancer patient treatment journey.

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Background

Nurse navigation in oncology has demonstrated benefits for people at risk for or diagnosed with cancer. These include a shorter time to diagnosis and start of treatment, increased patient and caregiver knowledge, better adherence to recommended care, and improved quality of life (Oncology Nursing Society, 2018). The goal of navigation is to reduce cancer morbidity and mortality by eliminating barriers to timely access to cancer care, which may be financial, psychological, social, or logistical, or may be related to communication, language, literacy, and equity of health care delivery (Oncology Nursing Society, 2018).

An oncology nurse navigator is a registered nurse with oncology-specific clinical knowledge who offers individualized assistance to patients, families, and caregivers to help overcome healthcare system barriers. Using the nursing process, the oncology nurse navigator provides education and resources to facilitate informed decision-making and timely access to quality health and psychosocial care throughout the cancer continuum (Oncology Nursing Society, 2013).

Navigation care service is essential for facilitating the smooth transition of oncology patients through diagnosis, treatment, survivorship, and end-of-life care. A study compared 5-year survival rates of treated patients with breast cancer before (1964–1986) and after (1995–2000) the introduction of patient navigation (Freeman, 2004). The 5-year survival rates rose from 39% to 70%. In early 2000, to address its diverse community, the Long Island College Hospital began a Breast Health Navigation Program (BHNP), which incorporated an algorithm process for problem-solving and expanded and assisted the role of the navigators throughout the breast cancer trajectory. The BHNP demonstrated improved outcomes in support group attendance, patient satisfaction, and follow-up appointment referrals, and a 1-day reduction in length of stay

(Johnston & Strusowski, 2017). These studies point to the effectiveness of nurse navigation in patients' cancer care journey.

The navigators' importance is intertwined with clear communication throughout the diagnosis and treatment of cancer. The role of the oncology nurse navigator is to advocate for and facilitate communication between the patient and family and the entire cancer care team. The trusting relationship that navigators establish with their patients often increases compliance with care, improves outcomes, and enables patients to feel heard and be more satisfied with their cancer care experience (Michelle, 2019).

The Academy of Oncology Nurse & Patient Navigators (AONN+) is the largest national specialty organization dedicated to improving patient care and quality of life for cancer patients by defining, enhancing, and promoting the role of the oncology nurse navigators. To advance the oncology nurse navigation field toward the goal of standardized metrics, a team from three organizations—AONN+, the American Cancer Society (ACS), and the Chartis Oncology Solutions Practice—conducted a pilot study in which eight sites were selected to collect the standardized core oncology navigation metrics with 4,682 patients over six months. The study demonstrated the efficacy of the tool and revealed key data points on the navigation, such as the time to treatment from diagnosis, 30-, 60-, and 90-day readmission percentages (10.8% to 16.3%), psychosocial distress screens, number of referrals generated, thereby assisting patients and families in treatment decisions, and addressing the holistic needs of the patients (Strusowski & Johnston, 2020). AONN+ toolkit with potential navigation metrics (measurement data) and recommendations and suggestions for addressing everyday challenges (Appendix A). The toolkit serves as a guide to help navigators, navigation leaders, and healthcare executives understand how to collect, assess, and use selected navigation metrics to better and sustain an institution's

oncology patient navigation programs. As evidence guides practice, every nurse navigation program must identify core metrics and standardize data collection to demonstrate program outcomes. AONN+ recommends that navigation services use their tool to guide the development and implementation of a standardized, evidence-based navigation metrics tool tailored to the organization's policies and operations.

The project scope was to develop and implement a standardized electronic navigation metrics tool for cancer institute of a public academic health center to measure the success of the oncology nurse navigation program in delivering high-quality, team-based care and in demonstrating the sustainability of navigation programs. The AONN+ toolkit is the current benchmark and recommendation for oncology nurse navigations. The implications for navigation practices using quality navigation measures are that they are transformative, are capable of evaluating professional practice and care delivery, can define oncology navigation practice and outcomes, and are necessary for the sustainability of navigation (Academy of Oncology Nurse and Patient Navigators, 2020).

Problem Statement and Significance

The oncology nurse navigator team at the organization was not using any standardized electronic tool to capture data on patient navigation, clinical outcomes, quality improvement initiatives, and return on investment. Each oncology nurse navigator was using a personalized form of data collection, such as an MS Word document, a Google Doc spreadsheet, or an MS Excel spreadsheet for capturing navigation information, hence limiting data visibility for process improvements, reducing data points for justifying nurse navigator staffing needs, and decreasing visibility of the impact of oncology nurse navigation on the patient's cancer journey.

The use of non-structured data collection tools by oncology nurse navigators has led to increased variability in the navigation process and in case management. The absence of digital data collection and a reporting platform has culminated in a lack of evidence to assess program efficiency or to identify initiatives for improving patient care delivery. The lack of data has caused the organization to question the value of the oncology nurse navigator program.

Project Mission Statement

The mission statement of cancer institute is to end cancer as we know it. As pioneers in personalized cancer medicine, the institute continues to change the way the world understands and fights this disease by:

- Providing individually tailored, compassionate care for every patient, from diagnosis through survivorship.
- Discovering new ways to prevent cancer.
- Developing new personalized cancer therapies.

The mission of this project is congruent with the cancer Institute of a public academic health center mission of providing individually tailored, compassionate patient care by developing and implementing a standardized, evidence-based, electronic oncology nurse navigator metrics tool across various oncology specializations to inform patient navigation, clinical outcomes, quality improvement initiatives, and return on investment, thereby demonstrating the value of the nurse navigator position in the organization.

Scope of the DNP Project

The project scope was to assess and evaluate current tools used by oncology nurse navigators and to develop and implement an organization-specific, standardized, evidence-based, electronic oncology nurse navigator metrics tool based on the AONN+. Current patient intake

forms were collected from nurse navigators and were analyzed. Inconsistencies were identified in the data capture process across various oncology nurse navigation specializations, including sarcoma, prostate, rectal surgery, lymph, and leukemia. This variability resulted in a lack of evidence needed to demonstrate clinical outcomes, patient experiences, and return on investment in nurse navigation programs.

AONN+ has proposed a total of 35 evidence-based navigation metrics relevant to cancer care to inform patient navigation, clinical outcomes, quality improvement initiatives, and return on investment. AONN+ recommends that organizations design specific tools to be developed based on the recommended metrics. The effectiveness of process improvements will be evidenced by the consistent and effective use of the standardized electronic tool by all nurse navigators and by the availability of real-time data for analysis and process improvement.

Environmental Context of the Problem

The project was implemented in the Oncology Nurse Navigation Unit of a public academic health center. The oncology navigation team consists of 14 oncology specialties (sarcoma, palliative care on campus, palliative care in community, gastrointestinal, leukemia, transplant, genito-urinary, prostate, breast and lung, rectal, lymphoma, head and neck myeloma, and classic hematology), which are managed by 16 oncology nurse navigators and a nurse manager.

A strengths, weaknesses, opportunities, and threats (SWOT) analysis was undertaken to assess the organization's environment for the project, as detailed below:

POSITIVE		NEGATIVE	
	STRENGTHS		WEAKNESSES

E x t e r n a l	<ul style="list-style-type: none"> • Ambulatory service director aligned on the need for a standardized, electronic platform. • Positive involvement of the stakeholders, such as the vice president, ambulatory service director, the nurse navigator manager, and the nurse navigator team. • The elevated reputation of the institution due to delivering high-quality oncology nurse navigation services. 	<ul style="list-style-type: none"> • New change management, where nurse navigators need to change from the current documentation process to a more standardized digital format. • Standardized tool implementation requires intense nurse training and re-training. • Use of non-structured data collection tools has led to increased variability in the navigation process and case management. • The absence of a digital data collection tool for reporting has led to a lack of evidence to assess program efficiency and identify initiatives for improving patient care delivery.
	OPPORTUNITIES	THREAT
	<ul style="list-style-type: none"> • Metrics tool demonstration of the impact of the nurse navigator role in cancer patient navigation. • The metrics tool will inform staffing needs based on patient caseload and open new navigation services for other cancer areas. • The increased influx of oncology patients may lead to an increased return on investment and revenue. • Identification of process gaps and quality improvement initiatives. 	<ul style="list-style-type: none"> • Risk of project de-prioritization due to other emerging department priorities and organizational policy changes.

The internal strengths of the project include the motivation and positive involvement of the stakeholders, such as the ambulatory service director, the nurse navigator manager, and the nurse navigator team, all of whom desire to standardize oncology metrics. In addition, the institution's vice president has asked for navigation metrics that demonstrate the effectiveness of the nurse navigator inpatient care journey and for evidence that will justify the expansion of the team to cover other oncology specializations. A primary weakness of the project is change management—i.e., nurse navigators must change from the current documentation process to a

more standardized digital format. This change will require intense training and re-training to help the nurse navigators become familiar with the new processes.

External factors that may be seen as possible underlying opportunities are the prestigious reputation of the institution for delivering high-quality oncology nurse navigation services and a potential increase in the volume of patient navigation, leading to increased revenue. The navigation reports may reveal the need to expand navigation department staff to support the current volume of patients and/or the need to open new oncological specialty navigation services, which may also result in increased revenue to department operations. Additionally, this project may demonstrate the value of nurse navigation in improving patient care and outcomes as well as identify opportunities for quality improvement initiatives. The threat identified during the SWOT analysis was the risk of project de-prioritization due to other emerging department priorities and organizational policy changes.

Faith Integration and Theoretical Framework

Faith Integration

Isaiah 41:10 says, “God says to ‘fear not, for I am with you; be not dismayed, for I am your God; I will strengthen you, I will help you, I will uphold you with my righteous right hand’.” Nurse navigators are in the right position to strengthen and help cancer patients and their families in making appropriate treatment and care decisions. Romans 8:28 says, “And we know that in all things, God works for the good of those who love him, who have been called according to his purpose” (King James Bible, 2017). Many believers say that they cannot imagine how anyone could survive hardship without Christ. Cancer is no different. Irrespective of believers or non-believers, cancer can quickly throw life out of control. A growing body of research is showing that a majority of patients with cancer have reported having religious and

spiritual beliefs that comfort them during their cancer journey (Salsman et.al., 2015). Religious influence is further supported by the results of a meta-analysis study conducted on 497 adult cancer patients, which concluded that greater religiosity and spirituality are associated with better patient-reported physical health. These findings underscore the importance of attending to patients' religious and spiritual needs as part of comprehensive cancer care (Jim et al., 2015).

Cancer can derail one's career, retirement, marriage, and family, forcing a sudden and singular focus on cancer demands. Moreover, cancer can be very demanding in terms of time, energy, focus, and emotions. Cancer brings us face-to-face with the lack of control we have over our lives. However, cancer does not affect God's control of our lives. Being a nurse, I live in faith daily and believe nursing to be the perfect profession to serve Christ and to lead patients and their families through the difficult cancer treatment and survivorship journey. In this project, the metrics tool was designed and implemented in consideration of holistic aspects of each patient, such as physical, social, emotional, cognitive, and other barriers in the cancer journey. Nurse navigators must assess and take necessary action to address and mitigate such aspects during oncology nurse navigation.

The tool was developed after multiple iterations in the project to ensure that all aspects of cancer patient care were covered during each nurse navigator encounter. Data from the project revealed 27% of anxiety, 21% worry, 13% depression, 10% fear, and 3% spiritual distress in the navigated cancer patients. The structured tool enables oncology nurse navigators to offer and track chaplain and spiritual support for patients and families who express interest in the services focused on spiritual aspects.

Theoretical Framework

John Kotter, a leadership and change management professor at Harvard Business School, introduced his ground-breaking 8-Step Change Model in his 1995 book, *Leading Change*. Built on the work of Kurt Lewin, the model outlines the eight critical steps of the change process, stating that a miss of any of the steps can fail the whole initiative.

The eight steps in the process of change include creating a sense of urgency, forming powerful guiding coalitions, developing a vision and a strategy, communicating the vision, removing obstacles and empowering employees for action, creating short-term wins, consolidating gains, and strengthening change by anchoring change in the culture (Kotter, 1996).



(Kotter, 1996)

The Rationale for Selected Theory

Kotter's eight steps emphasize that change is not a quick and straightforward process. Planning steps are required, and even when the change has been implemented, there is still much to do to ensure that the change is successful. Kotter argues that 70% of change initiatives fail. He attributes this failure to the fact that most organizations do not prepare enough or see the project through correctly. Following his steps increases the likelihood that the change initiative will be a long-term success. Hence, this model was selected to guide the implementation and continued

success of using a uniform metrics tool in delivering quality service to oncology patients with complex health care needs.

The Kotter 8-Step Change Model was adapted to bring the project's organizational change to fruition. Organizational change encounters resistance to change, especially in organizations that have existed for a long time. A sense of urgency (step 1) was generated among nurse navigator managers, nurse navigators, and IT support staff by presenting information on the current state of the department, with no data to demonstrate program contributions or the value of nurse navigators in the cancer patient care journey. A working team was formed (step 2), which included a nurse manager, an ambulatory service director, nurse navigators, and a health information administrator. The team worked together to outline a vision (step 3) and a strategic plan to develop and implement a standard navigation metrics tool. To address buy-in (step 4), multiple team meetings were organized during the project to communicate the goal, status, and timeline. The right stakeholders in the organizations, such as the ambulatory service director for contact permissions, the IT department for tool integration and the organization's vice president (step 5) for final sign-off were contacted to implement the tool. Once the project was launched, short-term wins (step 6) were celebrated by conducting interim data analysis, and the results were shared with the team to demonstrate the impact of the project in capturing navigation data in a digital format. The institution is building on these changes by continuing to use the tool (steps 7 and 8), and data points are being employed for process improvement initiatives, making a case for hiring more personnel.

Literature Review and Evidence Synthesis

The Databases CINAHL, Medline, Cochrane, and PubMed databases were reviewed for applicable and supporting literature for the project. The search keywords used were “nurse

navigator,” “effectiveness,” “navigation tool,” “navigation metrics,” “AONN+ metrics,” and “oncology nurse navigators.” Articles from 2010 to 2022 that met the inclusion criteria of being published in a peer-reviewed journal and in the English language were reviewed and analyzed. A total of 73 related articles were identified and reviewed, of which 16 were duplicates and 27 were non-relevant to oncology navigation because they focused on other navigation areas in health care. The remaining 29 articles were reviewed using more refined criteria, including oncology navigation tool, program advancement, patient care outcome, and tool standardization.

The synthesis of the 29 articles is presented below according to the following two themes:

- The value of the nurse navigator program in cancer management
- The development and importance of the oncology nurse navigator tool

Value of nurse navigator program in cancer management

Of the 29 articles, 12 were related to the value of the nurse navigator program in cancer management. Nurse navigators are in a position to shorten the time to diagnosis and to the start of treatment, thereby increasing patient and caregiver knowledge. In addition, the benefits for healthcare institutions include cost reductions through reduced rates of emergency department visits and readmissions, adherence to recommended treatment and follow-up (Oncology Nursing Society, 2018), and improved access to cancer care by rendering individualized care based on assessment and needs (Desimini et al., 2017; Diego et al., 2019). The importance of the role of the oncology nurse navigator—namely, to facilitate the development of core practice areas within nursing training modules to provide consistent and patient-centered continuity of care—has been recognized (Jeyathevan et al., 2017; McMullen, 2013). The nurse navigator develops individualized strategies to address barriers to care, including health equity issues. The relevant

data have shown a moderate reduction in treatment and service to populations at risk of loss to follow-up (Freund et al., 2014). The implementation of a patient navigation program reduces barriers and increases access to care. The goal of the National Navigation Roundtable (NNRT) was to encourage the navigation field to address equity as health disparity is common due to complex nature of cancer care (Dwyer et al., 2022).

The Professional Oncology Navigation Task Force has a document that provides oncology nurse navigators with clear information regarding the standards of professional practice and strategies to deliver effective care (Rawther et al., 2015). The document addresses the knowledge and skills all professional navigators should possess to deliver high-quality, competent, and ethical services to people impacted by cancer (Elizabeth et al., 2022). Standards were referenced for designing metrics navigation tools and training oncology nurse navigators on newly developed tools (Lubejko et al., 2019).

The ACS Patient Navigator Program has specially trained patient navigators across the country who can help find transportation to treatment and other cancer-related appointments, assist with medical financial issues, including insurance navigation, identify community resources, and provide information on a patient's cancer diagnosis and treatment process. In 2017, more than 40,000 people relied on the program to help them diagnose and treat cancer (American Cancer Society, 2019).

A study on navigation programs model has concluded that newly diagnosed cancer patients revealed positive outcomes in reducing anxiety and depression. The principles of patient navigation are founded on patient-centeredness, with timely access to cost-effective, seamless, and expert care. Navigators guide patients through the unfamiliar terrain of modern cancer care, answering their questions and functioning as a reassuring presence (Cobran et al., 2017).

Development and importance of a standardized oncology nurse navigator tool

Of the 29 articles, 17 were related to the development and importance of oncology nurse navigator tools. As current health care is moving closer to value-based care, standard metrics are essential to measuring the success of navigation programs and to establishing benchmarks for improvement (Strusowski, 2018). A multisite exploratory study conducted in eight sites demonstrated the need to identify core tools and to standardize data collection for demonstrating program outcomes. The study collected data on four (of 10) core metrics—navigation caseload, barriers to care, psychosocial distress screening, and social support referrals which informed the project team to identify additional core metrics for the organization-specific tool development. (Johnston et al., 2019).

A study conducted by an AONN+ task force and published in the *Journal of Oncology Navigation Survivorship* outlined the development of the tool with 35 identified metrics applicable to all navigation programs. Using a Likert scale, the task force members ranked the metrics tool as having high validity to inform the effectiveness of nurse navigation programs (Johnston & Strusowski, 2017). The study directed the DNP project to use the AONN+ metrics tool to develop a uniform oncology nurse navigator tool to measure navigation experiences, clinical outcomes, and business performance. It would demonstrate the sustainability of navigation programs.

Another study in collaboration with the ACS and Chartis Oncology Solutions executed navigation metrics (Johnson & Lesley, 2020). The researchers collected data electronically and uploaded the data to a cloud-based business intelligence platform to create a dashboard and report view using technology and reducing manual effort. This electronic platform allowed for the sorting of large data sets to identify patterns and relationships for quality improvement.

Although oncology navigation programs explore diverse solutions, the programs struggle to find health information technologies that sufficiently meet their needs. Information systems designed for oncology navigation programs should perform a wide range of functions: they must be customizable, affordable, interoperable, and have a low data entry burden (Phillips et al., 2020). Studies have informed the DNP project to leverage health information technology to inbuild navigation metrics into an electronic system for effective reporting and real-time data monitoring, and for identifying areas for process improvements for deciding further courses of action.

The Navigation Metrics Subcommittee Quality Initiatives project, over the span of three years, has worked for the advancement of the navigation profession by researching standardized, evidenced-based metrics in multiple areas for nurse navigation programs to facilitate quality coordinated patient care and financial stability for institutions. Studies empowered AONN+ to serve as a consulting body for the organization to design, maintain, and advance the navigation program (Haag et al., 2019).

Hartman (2016) created a scorecard and reports for the measurement of program development, quality patient care, and navigator return on investment, with guidance from cross-functional teams such as information technology, clinical informatics, the navigation team, and finance. This work provided evidence for cross-functional team collaboration for tool development and implementation.

Another pilot study demonstrated five universal applicable core metrics: navigator competencies, navigation caseload, barriers to care, psychosocial distress screening, and interventions impacting navigation and the quality of patient care delivered by navigators. These metrics were considered while developing the tool for the project (Equipping Navigation Teams

for Metrics Implementation, 2021) The researchers demonstrated that using evidence-based metrics helps the navigation specialty demonstrate its value and contribution to achieving and improving patient care and outcomes. The tool aids in meeting national quality standards and indicators that help drive quality for our programs. Additionally, tool integration is the biggest challenge of the metrics, and advice to maintain a working relationship with the IT department was emphasized (Caution: Metrics can be Addictive, 2022).

Nurse navigators, during day-to-day patient encounters and interactions, face novel and exciting experiences that require them to be prompt and ready to direct and guide patients according to their identified needs. Metrics tools must be structured in such a way as to allow adequate data capturing during unexpected circumstances (Tales from Navigator; can you Navigate our Horses Out of the Parking Lot? 2021).

Oncology nurse navigation has shown improved patient outcomes due to navigation and has influenced other fields of nursing to initiate navigation programs. One of its impacts is that The Commonwealth Fund, through the American Academy of Nursing, is making a case for transformation in this field and is initiating the process of designing metrics to measure the impact of chronic care navigation (The Reach of Navigation Expands: Spotlight on Chronic Disease and Complex Care Navigation, 2022).

A meta-analysis study demonstrated the requirement to develop an evidence-based, navigation-specific acuity tool that can help oncology navigators identify the complexity of each oncology patient, aid in the allocation of navigation resources, and measure the effectiveness of navigation on patient outcomes (Johnston & Strusowski, 2022). The implemented project has designed tools that incorporate critical components such as diagnosis, barriers, and treatment plans.

AONN+ and Astellas, US, LL are working to develop an acuity tool to help oncology navigators characterize the intensity of the patient navigation workload, aid in the allocation of resources, and measure the effectiveness of navigation on patient outcomes (Acuity: The Critical Measure in Navigation., 2020). Above literature has informed tool development to include acuity-specific information for delivering adequate staffing and enabling patient-centered navigation. A similar article was reviewed, highlighting national initiatives to kick off acuity tool development (Johnston et al., 2019).

Other literature that informed the project design, tool development, and implementation were related to barriers and opportunities in patient navigation (Battaglia, et al., 2022), the sustainability of navigation programs (Garfield et. al., 2022), and the process of navigation across the continuum of cancer care (Franklin et al., 2022). The literature review helped enhance the depth of knowledge and inspire clearer insights into the value of nurse navigator programs in cancer management as well as the importance of using standardized metrics tools to monitor and evaluate the success of navigation programs.

Project Objectives and Outcomes

Short-term Project Objectives

- By December,2021 a standardized oncology nurse navigator tool will be implemented among all nurse navigators for uniform data collection and processing to meet the patients' needs.
- By January,2022 facilitate the leadership team's identification of areas of process improvement based on electronic data availability in reports leading to increased efficiency of oncology nurse navigator case management.

- By April, 2022 inform organizational leadership on the impact of nurse navigators on patient navigation, improve clinical outcomes, identify quality improvement opportunities, and highlight return on investment.

Long-term Project Objectives

- Impact on patient care journey through effective treatment and care outcomes demonstrated by effective record keeping and improved processes.
- Integration of developed tool into electronic medical records (EMR)

Methods and Implementation

Data collection included first reviewing and comparing the current non-standardized oncology nurse navigator patient intake forms (metrics tools) to the recommended metrics by AONN+. I, the project leader, reviewed all of the intake forms for consistency of intake content (metrics) across each cancer area nurse navigator, then compared the information captured to the AONN+ recommended metrics. Inconsistencies between intake forms and in comparison, to the AONN+ benchmark were identified. The findings were shared with an organizational task force during the weekly meetings. The taskforce included the project leader (the DNP student), a nurse manager, an ambulatory service director, nurse navigators, and a health information administrator. During the task force meetings, each metric was reviewed, and recommendations were made for the tool development based on the identified gaps and the institutional operational model to report patient experiences, clinical outcomes, and return on investment.

Following the task force's discussions and recommendations, an evidenced-based oncology nurse navigation metrics collection tool was developed by the project leader in association with the task force. The initial draft was developed in an MS Excel spreadsheet and

shared with the taskforce for review at daily and weekly meetings. Upon finalization of the tool in the spreadsheet, the project leader inputted the metrics tool into a secure web application called REDCap (research electronic data capture), an online platform for managing surveys and databases. The organization has an active account with this platform. The electronic tool was finalized for training and launched for use. The developed standardized tool focused on the following domains:

- Coordination of care/care transitions:
 - Number and list of specific barriers to care identified
 - Number of specific referrals/interventions offered to navigated patients
 - Number of patients educated on clinical trials by the navigator
 - Number of patients navigated to the clinical trial department
 - Number of business days from diagnosis (date pathology resulted) to initial treatment modality (date of first treatment)
- Operations Management, Organizational Development, Health Economics
 - Number of new cases, open cases, and closed cases
 - Number of referrals to revenue-generating services
- Psychosocial and Spiritual Support/Assessment
 - Number of navigated patients per month who received psychosocial distress screening at a pivotal medical visit with a validated tool
 - Number of navigated patients referred to support networks
 - Number of navigated patients requesting and referred for spiritual support
- Survivorship and End of Life

- Number of navigated patients (patients with curative intent) per month who received a survivorship care plan and treatment summary
- Number of navigated patients per month referred to appropriate support services at the survivorship visit
- Number of navigated patients per month referred for palliative care services

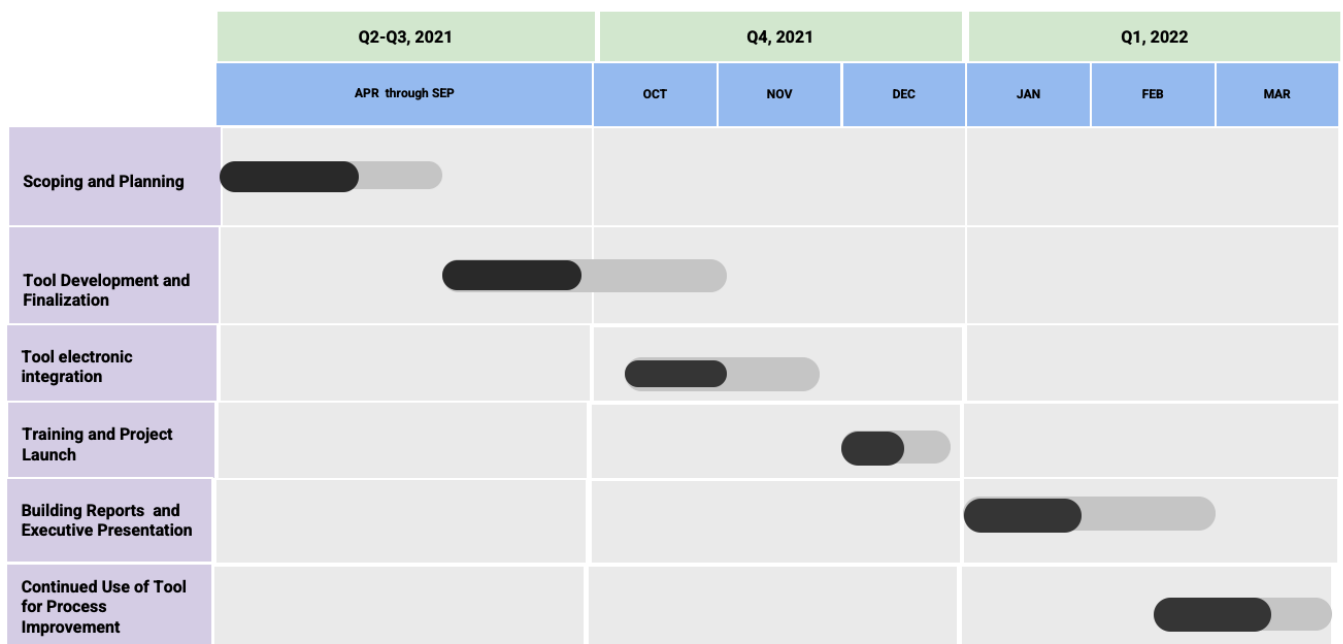
The project leader created a PowerPoint presentation on the REDCap tool and its use in data entry. Training was given to 16 oncology nurse navigators in two sessions. Additionally, training was recorded for future training of new oncology navigators. Also, hands-on training sessions were conducted for navigators to ensure the appropriate use of the tool. All oncology nurse navigator teams were trained on the new standardized electronic metrics tool, which was officially released for data capture purposes in December 2021.

Project Timeline

Project planning started in April 2021 and was completed in September 2021. Institutional Review Board (IRB) approval was obtained from the Cancer Institute of a public academic health center, on August 9, 2021 (Appendix B), and California Baptist University approval was secured on September 7, 2021 (Appendix C). The draft development of the metrics tool (Appendix D) was finalized in November 2021. Training slides were developed and practiced with nurse managers on November 22, 2021. Sixteen oncology nurse navigators from 14 oncology specialties were trained on November 30, 2021, and December 2, 2021. The database was officially launched on December 7, 2022, when all nurse navigators started using the standardized electronic database for all navigated patients. The project leader designed 15 different reports (Appendix E) in REDCap for real-time access to data for reporting and review on a regular cadence. The report gives a closer view of each data point collected in the tool. A

final review of project-generated data was conducted in April–May 2022 and was presented to the organization’s leadership team (inclusive of vice president of non-oncology services, director for growth and strategy, medical director of oncology unit, vice president of ambulatory services, and director of ambulatory services).

Figure 1. DNP Project Timeline for Development and Implementation of a Standardized, Evidence-based, Electronic Oncology Nurse Navigator Metrics Tool



Data Analysis Methods

As the previous organization was not using any standardized tool, the project data analysis plan included quantitative analysis, including percentage values, means, and standard deviations. The analysis plan also included a comparison of the total number of patients navigated to the total metrics captured in the standardized tool. The effectiveness of the tool will be measured by its ability to capture valuable data reflecting patient care coordination, assessment, and support services provided. Additional reports can be generated in REDCap to

enable oncology nurse managers, ambulatory service directors, and leadership teams to review and evaluate data at any time as required simply by accessing the REDCap project.

Evaluation of Program Success

Practical program evaluation systematically examines the implementation and results of the strategies and interventions and uses the findings to improve further actions (CDC, 2015).

The project has added immense value to the organization and to the navigation team by demonstrating program contributions by having access to real time data which was previously non-existent. Success was further confirmed by analyzing data entered into the electronic system from 1,156 (97%) patients (out of 1,192 patients) from December 2021 to April 2022. All oncology nurse navigators began using the new electronic tool on December 7, 2021, and training was also incorporated as an essential component of new hire onboarding.

A PowerPoint presentation was prepared and presented, with significant findings and recommendations, to the leadership team upon reviewing the initial four months of data. The leadership team (inclusive of vice president of non-oncology services, director for growth and strategy, medical director of oncology unit, vice president of ambulatory services, and director of ambulatory services) was motivated to design the tool for other navigation departments in the organization and also agreed to invest resources to integrate the designed tool into electronic medical records (EMRs).

Finances and Resources

Resources

The institution absorbed all direct and indirect costs associated with project planning, development, and implementation, which included:

- Nurse navigator and nurse manager resources for tool development and finalization

- The navigation team invested time and effort to refine the tool, to train, and to implement the tool into day-to-day operations.
 - Nurse managers invested time and resources in developing and utilizing the data collected in gap analysis and process improvements to render effective, high-quality services.
- Hospital IT resources configured the navigation tool into the electronic database for data analysis and reporting. The leadership team reviewed the project and pushed the final production for nurse navigator use.
- Sixteen oncology nurse navigators from all specialties (sarcoma, palliative care, gastrointestinal, leukemia, genitourinary, prostate, breast, lung, rectal, lymphoma, head and neck, and myeloma) were trained on the newly developed tool using training slides and hands-on training on November 30, 2021, and December 2, 2021, and started using the tool beginning on December 7, 2021.

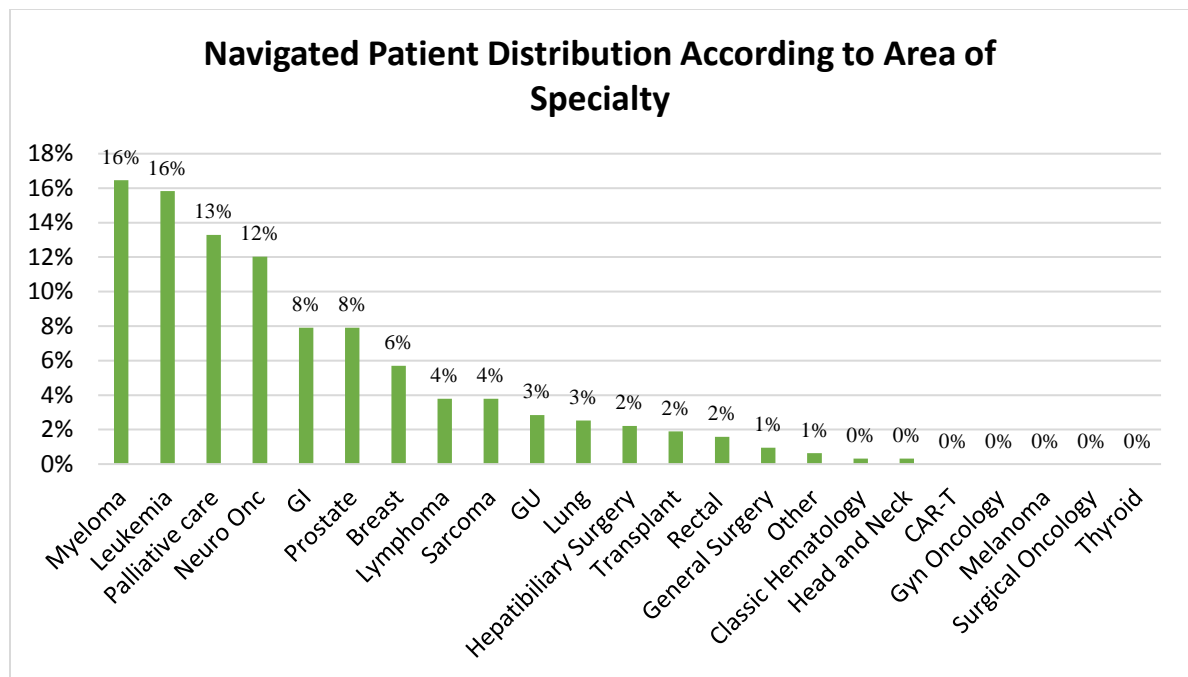
Final Results and Outcomes

Data were analyzed across 1,156 patient record submissions from December 7, 2021, to April 25, 2022. Through implementation of the tool, navigation data were made available to the leadership (inclusive of vice president of non-oncology services, director for growth and strategy, medical director of oncology unit, vice president of ambulatory services, and director of ambulatory services) and navigation teams for the first time. Key navigation metrics analyzed were patients' cancer area, types of referrals, urgency of referrals, nursing practice interventions offered, patient education offered, physical barriers identified, social barriers identified, and source of referrals. Additionally, 16 customizable reports (Appendix D) were designed by the project leader in REDCap to visualize the data as needed. Digital report access was granted to

navigation and leadership team members. A PowerPoint presentation was prepared and presented to the leadership team, with significant findings and recommendations, upon reviewing the initial four months of data.

The project demonstrated the standardized electronic tool to be an effective source for extracting oncology navigation data to review the navigation program overview and to make strategic decisions. For instance, as shown in Figure 2, the analysis revealed that the largest number of navigated patients had the following diagnoses: myeloma (16%), leukemia (16%), palliative care (13%), and neurological cancers (12%), with other areas noted as less than 10%. These data comprise evidence of the need to increase nurse navigator staffing in these areas.

Figure 2. Oncology Navigation Specialty Patient Was Referred



In Figure 3, the data depict the complexity of the navigation work: cancer patient referrals were routine in 68% of cases, whereas 28% were urgent, 3% were emergent, and 1% were not specified. Hence, the data demonstrate the need for adequate navigation- or, perhaps,

the need for increased staffing- because urgent and emergent category patients require more navigator time and effort. These data were identified as integral for acuity and staffing plans.

Figure 3. Urgency of Navigation Referrals Received

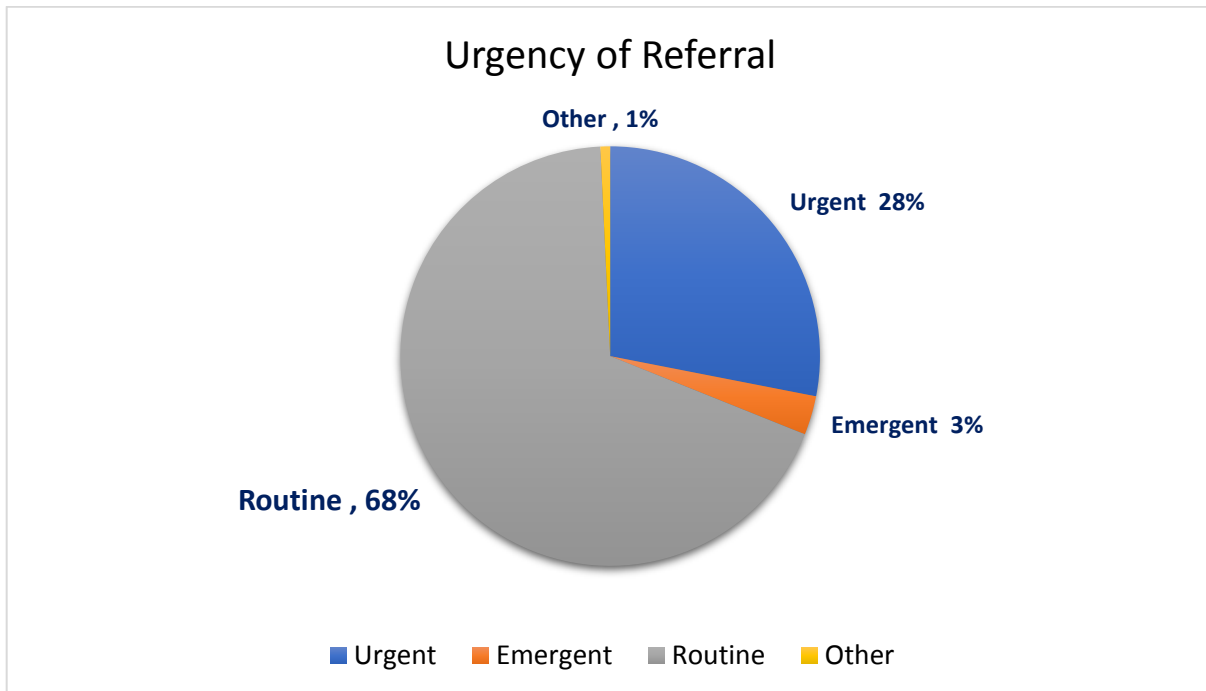
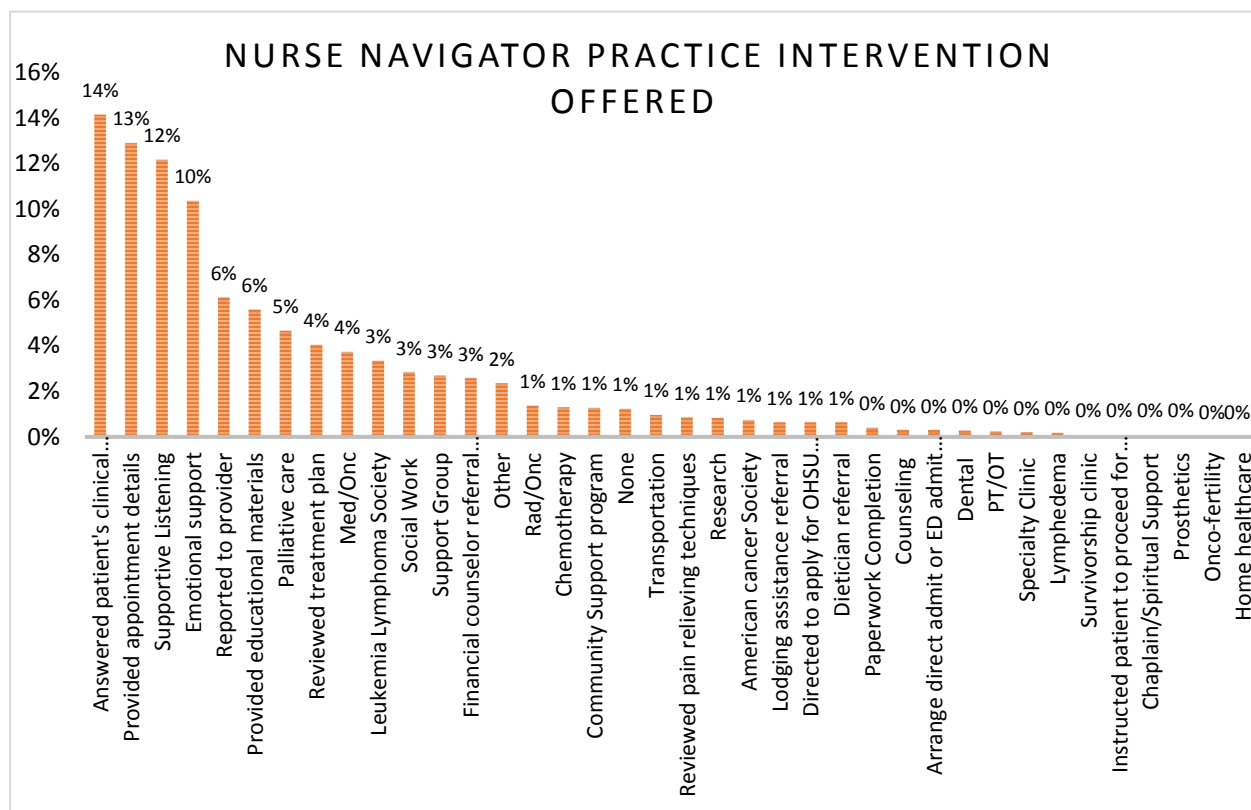
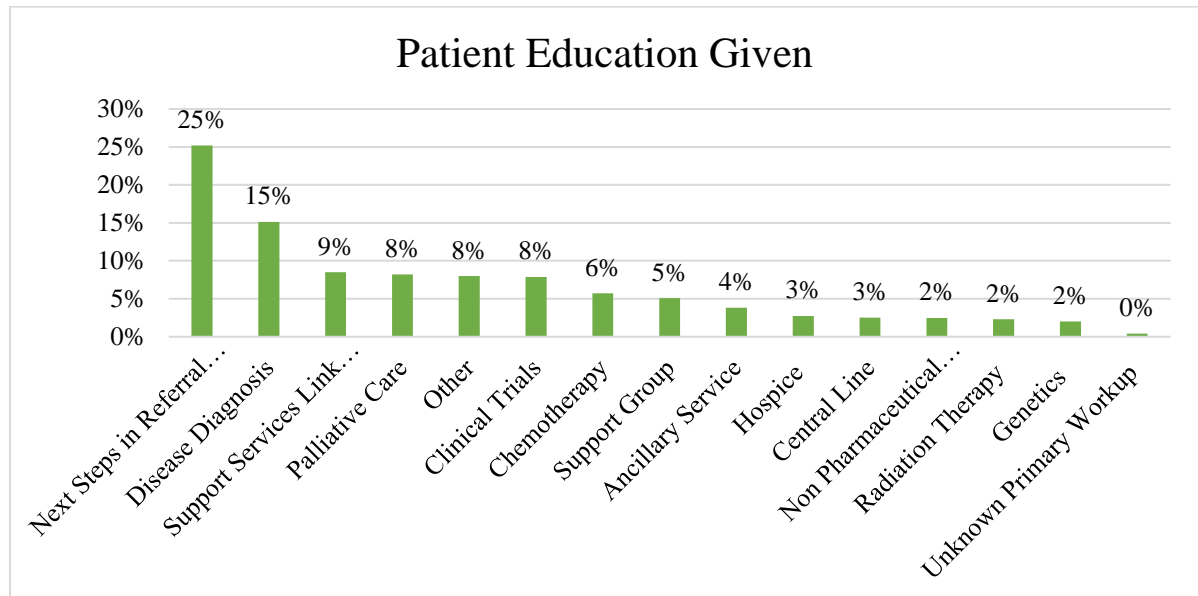


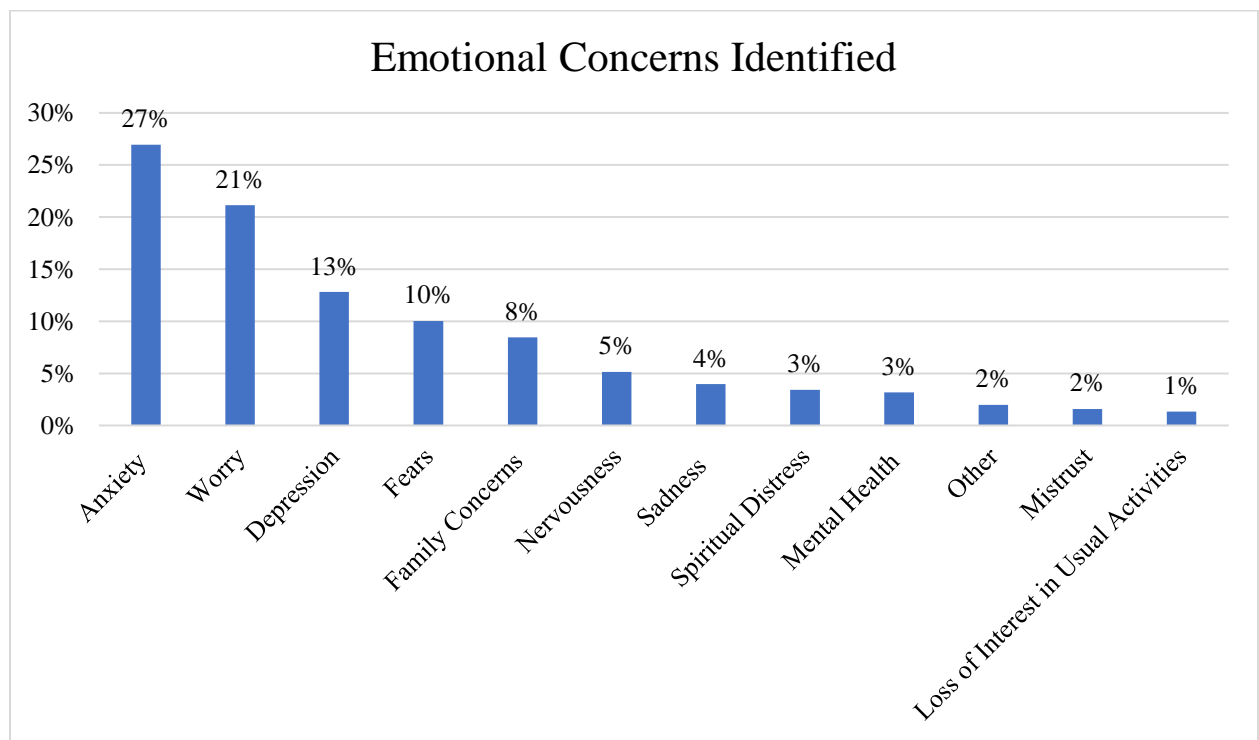
Figure 4 on type of nursing practice intervention offered during cancer patients navigation were 10–14% of answering clinical questions, upcoming appointment details and process discussions, supportive listening, and emotional support. Less than 10% of services encompassed treatment plan review, support group referrals, the set-up of social worker consultations, and referrals to appropriate support groups. These data provide a platform for nurse managers, educators, and administration to review nursing services and devise a process improvement plan for ensuring high-quality care delivery.

Figure 4. Nurse Navigator Specific Practice Intervention Offered

The primary foci of patient education shown in figure 5 were identified as discussion on the topic- next steps in the referral process (25%), disease diagnosis (15%). Patient education topics covered less frequently included: support service availability, palliative care, applicable clinical trial availability, chemotherapy, support groups, and other treatment-specific questions.

Figure 5. Nurse Navigators Patient Education Topics

From the emotional concern perspective, anxiety (27%) and worry (21%) were found to be the most common among cancer patients as shown in the figure 6.

Figure 6. Emotional Concerns Identified During Navigations

The most common patient physical barriers identified were pain (17%) and fatigue (16%). Social concerns identified were primarily focused on transportation (17%), financial and health insurance coverage (12%), and treatment decisions (12%) (Appendix F). Other uncategorized barriers identified were patients living more than 50 miles away from the organization (44%), multiple co-morbidities (27%), care at multiple locations, and poorly managed physical health (4%) (Appendix G). Data availability on education needs and identified barriers helps the team to view the common issues and make practical plans to address the patients' concerns and requirements.

The highest source of referrals for consultation or second opinion was provider to provider (82%). Self-referrals occurred in only 16% of cases (Appendix H). Out of 1,156 navigated patients, 54% received prior treatment before navigation and 4% reported to be in-surveillance of cancer (Appendix I). Appendix J shows that nurse navigators generated consults for 83% of navigated patients, contributing to revenue generation. Appendix K shows additional diagnostic workups coordinated by nurse navigators, such as slide reviews, pathology evaluations, computer tomography (CT), positron emission tomography (PET), and magnetic resonance imaging (MRI).

All data generated in the standardized electronic database represent a valuable asset for the navigation department in making informed decisions on process improvements, staff planning, acuity estimation, expansion of navigation services, and increases in the efficiency of navigation case management. The value of nurse navigation is demonstrated in Appendices F to N, which depict the efforts involved in effective care management and good patient outcomes, such as, identification of barriers, education of patients, and making appropriate consultations and referrals based on each cancer patient's complex needs.

One challenge presented itself during development and implementation. There was initial hesitation from nurse navigators to adapt to the new process of using the electronic tool. This was rectified by training sessions and by organizing follow-up meetings. The oncology nurse navigators have adopted the project well, and the tool has become an integral part of oncology navigation at cancer Institute of a public academic health center. The project objectives were met by developing and implementing the standardized metrics tool with all 16 oncology nurse navigators, thus increasing case management efficiency. In addition, data reports were designed in the electronic database to allow for periodic and need-based monitoring of the metrics for leadership review of care processes, quality improvement opportunities, value of nurse navigation, and return on investment. After sharing the initial four months of data analysis and the success of the electronic tool implementation with the leadership team, the decision was made by the administration to expand the navigation tool for use across other navigation departments in the organization. Furthermore, the organization decided to direct resources to integrate the newly developed standardized oncology navigation tool into the EMRs.

Implications for Practice

The implementation of a standardized metrics tool has concentrated oncology navigation data in one centralized electronic database and has generated evidence for supporting process improvements, resource planning, and strategic decision-making by leadership. A standardized oncology nurse navigation metrics tool is essential for demonstrating the success and sustainability of the oncology nurse navigator program. In any successful healthcare organization, it is vital to have metrics in place and a plan of action for performance improvement initiatives to enhance patient outcomes. Also, the developed metrics can be shared at national conferences and meetings to empower other organizations and healthcare navigation

services to design and implement their own navigation metrics. Understanding patient experiences is a key step in moving toward patient-centered care. By looking at various aspects of the patient experience, one can assess the extent to which patients receive care that is respectful of and responsive to their individual preferences, needs, and values. Evaluating patient experiences and other components, such as effectiveness and safety of care, is essential to providing a complete picture of healthcare quality. In oncology, the nurse navigator provides education, support, guidance, and follow-up to ensure that patient needs are proactively being met and that barriers are being removed (The Navigation Metrics Toolkit: Measuring the Effectiveness of your Navigation Program, 2021)

Recommendations

The project was implemented using an electronic database (REDCap), causing oncology nurse navigators to use two systems for coordinating care for each patient: REDCap and Epic, the Electronic Medical Record (EMR). One recommendation is to integrate the metrics tool into only the Epic EMR to avoid using two digital platforms and to keep information in a single digital location. Tool integration into the EMR will lead to improved efficiency in data capture. Training and instruction will be included as part of new oncology nurse navigator onboarding at OSHU. Data are to be used for evaluating future training needs and process improvements.

Also, data to be utilized for research pertaining to the navigation field (Johnson, 2015). Additionally, the developed metrics tool and its impact can be presented to the AONN+ via a poster or conference. Other departments can adopt metrics tool development and implementation processes for elevating the standard of care delivery.

Conclusion

The role of the nurse navigator in helping patients through their journey from diagnosis to treatment and survivorship has evolved, and, in many settings, the nurse navigator has become a vital component of a multidisciplinary approach to cancer care. The standardized, evidence-based, electronic oncology nurse navigator tool will help the organization understand the value of the nurse navigator role and how it impacts the patient's cancer journey. Additionally, according to Goodman, once a navigation tool is developed for an organization, it will immensely aid in addressing critical navigation areas, such as eliminating health disparities, prevention and early detection of cancer, diagnosis and treatment of cancer, referral to needed support services, survivorship, end-of-life care, palliative care, navigation, family, and caregiver partners, patient-related outcomes, and cost-effectiveness (Goodman, 2015).

The DNP project on system change was successfully implemented and has become integral to the day-to-day operations of oncology nurse navigators. Electronic tools continue to advance healthcare systems by informing and improving patient experiences, clinical outcomes, and return on investment. For long-term sustainability, supporting evidence generated by the project must be adopted into other practice areas for integrating the developed tool into EMRs. As Bill Maris states: "healthcare is becoming part of information technology" (Popper, 2014).

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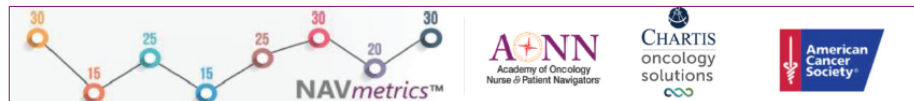
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Appendix A

AONN+ Recommended Oncology Navigation Metrics



National Evidence-Based Oncology Navigation Metrics: Multisite Exploratory Study to Demonstrate Value and Sustainability of Navigation Programs

Key Highlights

First-of-its-kind study to examine outcomes, evaluate analytics, identify barriers/challenges, analyze performance improvement processes, and identify opportunities for future research.

Sites collected qualitative and quantitative data on 10 AONN+ evidence-based navigation metrics. Validated evidence-based tools were incorporated into the study design for data collection to help ensure like data elements were captured across study sites.

Domain	Metric
Care Coordination/Care Transition	Barriers to care; measuring the number and list of specific barriers to care identified by navigator per month
Care Coordination/Care Transition	Diagnosis to initial treatment; measuring the number of business days from diagnosis (date pathology results obtained) to initial treatment modality (date of 1st treatment)
Operations Management/Organizational Development/Health Economics	Navigation caseload; measuring the number of new cases, open cases, and closed cases navigated per month
Operations Management/Organizational Development/Health Economics	Measuring the number of navigated patients readmitted to the hospital at 30, 60, and 90 days
Psychosocial Support Services/Assessment	Psychosocial distress screening; measuring the number of navigated patients per month who received psychosocial distress screening at a pivotal medical visit using the National Comprehensive Cancer Network distress screening tool
Psychosocial Support Services/Assessment	Social support referrals; measuring number of navigated patients referred to support network per month
Survivorship/End of Life	Palliative care referral; measuring number of navigated patients per month referred for palliative care
Patient Advocacy/Patient Empowerment	Identify learning style preference; measuring the number of navigated patients per month whose preferred learning style was discussed during the intake process. The group agreed this should be included, if we can identify a validated tool
Professional Roles and Responsibilities	Navigation knowledge at time of orientation; measuring percentage of new hires who have completed institutionally developed navigator core competencies
Research/Quality/Performance Improvement	Patient experience/patient satisfaction with care; measuring patient experience or patient satisfaction survey results per month. The group determined use of CCHAPS (Community-wide Children's Health Assessment & Planning Survey) for measuring patient satisfaction

Appendix B

Cancer Institute of a public academic health center Institutional Review Board Approval on

August 9, 2021

**IRB MEMO**

Research Integrity Office

3181 SW Sam Jackson Park Road - L106RI
Portland, OR 97239-3098
(503)494-7887 irb@ohsu.edu

NOT HUMAN RESEARCH

August 9, 2021

Dear Investigator:

On 8/9/2021, the IRB reviewed the following submission:

Title of Study:	Development and implementation of a standardized, evidence-based oncology nurse navigator metrics tool across various oncology specializations nurse navigation.
Investigator:	Margaret Bertoldi
IRB ID:	STUDY00023369
Funding:	None

The IRB determined that the proposed activity is not research involving human subjects. IRB review and approval is not required.

Certain changes to the research plan may affect this determination. Contact the IRB Office if your project changes and you have questions regarding the need for IRB oversight.

If this project involves the collection, use, or disclosure of Protected Health Information (PHI), you must comply with all applicable requirements under HIPAA. See the [HIPAA and Research website](#) and the [Information Privacy and Security website](#) for more information.

Sincerely,

The OHSU IRB Office

Appendix C

California Baptist University Institutional Review Board Approval September 7, 2021

IRB 010-2122 DNP

IB

Institutional Review Board

Tue 9/7/2021 9:14 PM



To: Jincy Jestine; Institutional Review Board

Cc: Lorraine Shields

RE: IRB Review

IRB No.: 010-2122 DNP

Project: Development and implementation of a standardized, evidence-based electronic oncology nurse navigator metrics tool for use across various oncology specializations

Date Complete Application Received: 09/01/2021

Date Final Revision Received: N/A

Principle Investigator: Jincy Jestine

Co-PI: N/A

Faculty Advisor: Dr. Lorraine Shields

College/Department: CON

IRB Determination: DNP Application **Approved** – Faculty research using anonymous survey questionnaires; no minor participants; no more than minimal risk/risk appropriately mitigated; no deception utilized; acceptable consent procedures and documentation; acceptable data protection procedures. Data collection may begin, in accordance with the final submitted documents and approved protocol.

Future Correspondence: All future correspondence about this project must include all PIs, Co-PIs, and Faculty Advisors (as relevant) and reference the assigned IRB number.

Approval Information: (Expiration: Full Review Only) Approval is granted for one year from date below. If you would like to continue research activities beyond that date, you are responsible for submitting a Research Renewal Request with enough time for that request to be reviewed and approved prior to the expiration of the project. In the case of an unforeseen risk/adverse experience, please report this to the IRB immediately using the appropriate forms. Requests for a change to protocol must be submitted for IRB review and approved prior to implementation. At the completion of the project, you are to submit a Research Closure Form.

Researcher Responsibilities: The researcher is responsible for ensuring that the research is conducted in the manner outlined in the IRB application and that all reporting requirements are met. Please refer to this approval and to the IRB handbook for more information.

Date: 09/07/2021

Appendix D

REDCap Oncology Navigation Tool Overview

viewing Margaret Bertoldi's screen

https://octri.ohsu.edu/redcap/redcap_v11.3.4/DataEntry/record_id=JR-001-TEST-1&record_id=JR-001-TEST-1

Data Collection

- Survey Distribution Tools
 - Get a public survey link or build a participant list for inviting respondents
- Record Status Dashboard
 - View data collection status of all records
- Add / Edit Records
 - Create new records or edit/view existing ones
- Record ID **JR-001-TEST-1** [Select other record](#)

Applications

- Project Dashboards
- Alerts & Notifications
- Calendar
- Data Exports, Reports, and Stats
- Data Import Tool
- Data Comparison Tool
- Logging
- Field Comment Log
- File Repository
- User Rights and DAGs
- Customize & Manage Locking/E-signatures
- Data Quality
- API and API Playground
- External Modules
- REDCap Help Wiki

Help & Information

- Help & FAQ
- Video Tutorials
- Suggest a New Feature
- Contact REDCap administrator

The grid below displays the form-by-form progress of data entered for the currently selected record. You may click on the colored status icons to access that form/event. If you wish, you may modify the events below by navigating to the [Define My Events](#) page.

Choose action for record

Legend for status icons:

- Incomplete
- Unverified
- Complete
- Many statuses (mixed)
- Incomplete (no data saved)
- Partial Survey Response
- Completed Survey Response
- Many statuses (all same)

Record ID **JR-001-TEST-1**

Data Collection Instrument	Navigator 1: Demographics [svc_mmm]	Navigator 2: Services [svc_mmm] [svc_dt]	Navigator 3: Workup [svc_mmm] [svc_dt]	Navigator 4: Consults & Close [svc_mmm] [svc_dt]
Navigator 1 - Patient Demographics				
Navigator 2 - Service and Referrals				
Navigator 3 - Workups and Treatment				
Navigator 4 - Consults and Case Summary				
Delete all data on event:				

Repeating Instruments

Navigator 2 - Service and Referrals

Navigator 2: Services (2)

1		Date of Service: 11-12-2021
2		Date of Service: 11-13-2021

+ Add new

Navigator 3 - Workups and Treatment

Navigator 3: Workup (1)

1		Date of Service: 11-12-2021
---	--	-----------------------------

+ Add new

Navigator 4 - Consults and Case Summary

Navigator 4: Consults & Close (1)

1		Date of Service: 11-12-2021
---	--	-----------------------------

+ Add new

Referral Information

Indicate the oncology specialty the patient is referred to:

Select based on referral specialty or diagnosis

Does this referral need to be transferred to a different OHSU specialty?

☐ Yes ☐ No

Referral is being transferred, because referred to wrong specialty, or not best option for patient.

Any additional medical consultation requested or required?

☐ Yes ☐ No

Urgency of Referral:

☐ Urgent ☐ Emergent ☐ Routine ☐ Other

Nurse Navigator Contact and General Referral Details

Type of referral

☐ Internal referral (within OHSU)
☐ External referral, in-state
☐ Out of State referral
☐ International

Source of referral:

☐ Provider to provider
☐ Patient self-referral
☐ Family referral
☐ Other

Save & Exit Form
Save & Stay
Cancel

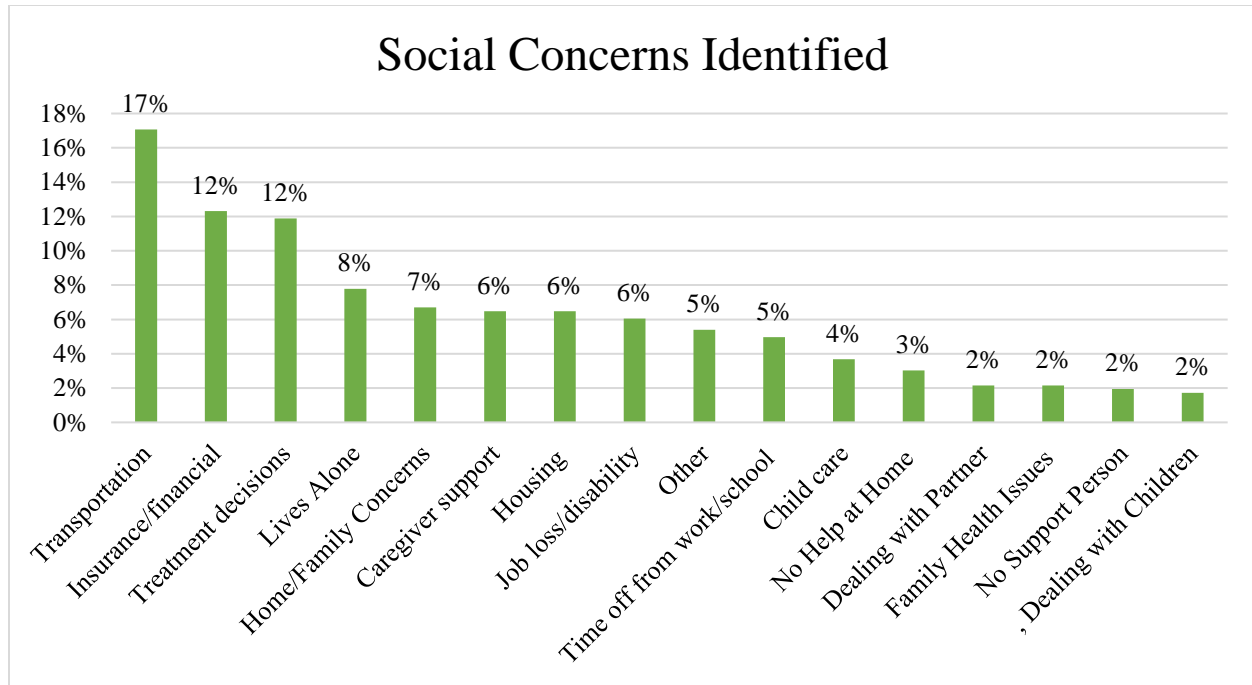
Appendix E

Customizable Reports Designed in Electronic Tool REDCap

- ☐ **Hem Malignancy/Hematology Cluster_Reports**
 - 1) Hem Malignancy/Hematology Cluster_Nav 1
 - 2) Hem Malignancy/Hematology Cluster_Nav 3
 - 3) Hem Malignancy/Hematology Cluster_Nav 4
- ☐ **Solid Tumor Clusters**
 - 1) Solid Tumor Cluster Nav 1 and 2
 - 2) Solid Tumor Cluster Nav 3
 - 3) Solid Tumor Cluster Nav 4
- ☐ **Palliative Care Cluster**
 - 1) Palliative Care Cluster Nav 1 and 2
 - 2) Palliative Care Cluster Nav 3
 - 3) Palliative Care Cluster Nav 4
- ☐ **GI Cluster**
 - 1) GI Cluster Nav 1 and 2
 - 2) GI Cluster Nav 3
 - 3) GI Cluster Nav 4
- ☐ **Other Clusters**
 - 1) Other Clusters Nav 1 and 2
 - 2) Other Clusters Nav 3
 - 3) Other Clusters Nav 4

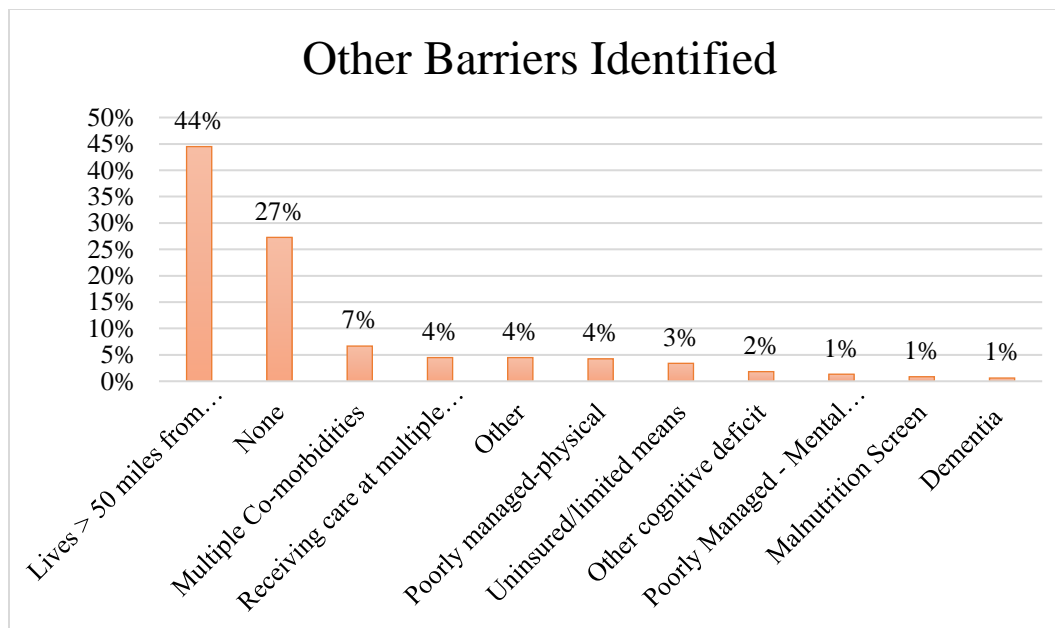
Appendix F

Social Barriers Identified During Navigations



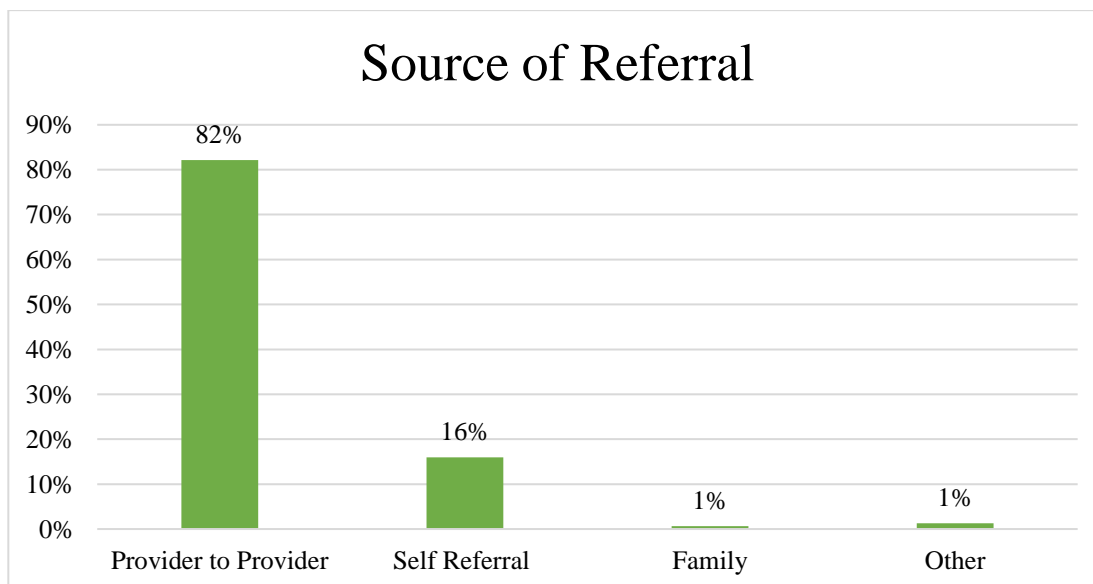
Appendix G

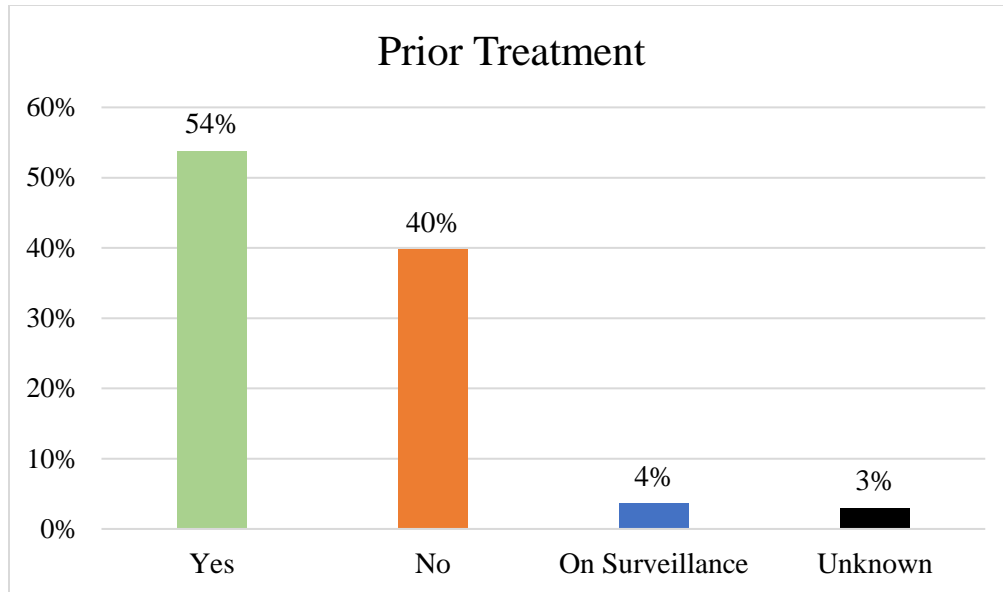
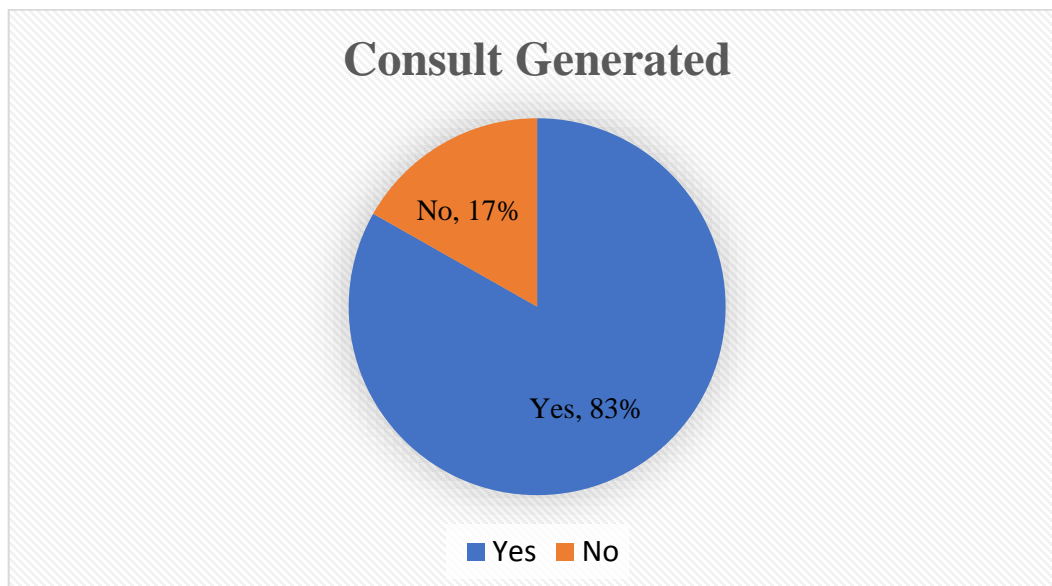
Other Barriers Identified During Navigations



Appendix H

Sources of Referral Received



Appendix I*Patients Received Prior Treatment Before Navigation***Appendix J***Patient Scheduled for Consult at Cancer Institute*

Appendix K

Nurse Navigation Order for Additional Diagnostic Workup

