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The Nurse Will See You Now: Improving Nurse-Led Chemotherapy Teaching

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Acknowledgment

As I pause to reflect on this journey, I am grateful to be at the threshold of graduating after what has now become a 6-year adventure of advanced nursing education and training.
I would not be at this juncture if not for my prior co-worker and nursing "work wife," Mary Helen. With her encouragement, I attended a USF informational session for MSN nursing, which put us on this trajectory of advancing our nursing degrees.

Halfway through my MSN degree, I was diagnosed with invasive breast cancer, and my world was turned upside down. The tumor had become my nemesis as I fought to maneuver through the challenges of surgery, chemotherapy, radiation, and schoolwork. With the help and support of my family, Kaiser ICU co-workers, South Bay USF cohort students, and professors (Drs. Mary Lou De Natale and Francine Serafin-Dickson), I was able to graduate on time with my Master of Nursing, with a Clinical Nurse Leader focus. Advancing my education lit a fire in me that was still ongoing as I decided to return to USF and obtain a DNP degree.

I am grateful for the University of San Francisco, School of Nursing, and Health Professions, as they allowed me the opportunity to connect with some of the most amazing teachers (professors) and other students. I could not have completed this work without the support of my Chair, Dr. Juli Maxworthy, as you were always available to coach me through the difficult days. My co-chair, Dr. Elena Capella, was with me on my MSN journey as well, and I will always be grateful for her support now and during such a difficult time in my life.

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Section I: Title and Abstract

Abstract

Problem: According to The International Agency for Research on Cancer (IARC) 2020 World Cancer Report, cancer has contributed to 9.6 million deaths in 2018 and is now globally considered the second most common cause of death (IARC, 2020).

Context: As a cancer patient moves beyond diagnosis, there becomes a need to introduce the plan of care and education related to evidence-based treatments with an intent to cure. As the delivery of these treatments continues to move toward outpatient care, herein lies the challenge of sharing important information with the patient to improve health outcomes.

Intervention: This DNP change of practice project used an evidence-based educational training toolkit and educational endeavor targeting oncology nurse coordinators.

Measures: The author developed Nurse-Led Pre-Treatment Education Experience Survey that was used to collect baseline data pre-and post-training to measure project outcomes.

Results: Thirteen Nurse Coordinators participated in this educational change of practice. It was anticipated that through education and a toolkit, nurse knowledge would increase by 20 %. The data analyzed after the intervention showed an increase in nurse knowledge of 35%.

Conclusion: The value of providing an educational toolkit for use by oncology nurses has shown to improve knowledge and comfort levels for these providers and enable the patient to self-manage potential treatment-related side effects.

Keywords: nurse, nurse coordinator, patient education, navigator, chemotherapy teaching

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Section II: Introduction

Background

Breast cancer has become the most prevalent cancer besides skin cancer to affect women in the United States (American Society of Clinical Oncology [ASCO], 2019). According to the National Cancer Institute Surveillance, Epidemiology, and End Results Program (SEER), it is estimated that 268,600 (15.2%) new cases of female invasive breast cancer are expected to be diagnosed in 2019, affecting about one in eight (12%) of women over their lifetime. Of those diagnosed, it is estimated that 40,920 (6.7%) are expected to die (National Cancer Institute [NIH], 2018). Fortunately, due to recent advances in life-saving treatments for breast cancer, there are multiple options to offer the patient: surgery, radiation, chemotherapy, targeted therapies, hormonal therapies, and clinical trials (Breastcancer.org, 2019).

Problem Description

Oncology care in an academic medical oncology outpatient setting is complex, requiring multidisciplinary team-based models to give the most effective, safe, and efficient patient care. The role of the oncology nurse coordinator (NC) or multidisciplinary care coordinator (MCC) was developed to respond to this complex system. Navigation of the system has become a standard of care by which cancer programs become accredited by the Commission on Cancer (Swanson, Strusowski, Mack, & Degroot, 2012).

The oncology nurse coordinator role in a large academic outpatient oncology clinic is continually being modified to better assist the patient care team in improving patient education. After the plan of care is put together by the medical oncologist, along with input from the patient, it becomes necessary to educate the patient on what to expect and how to manage this

phase of treatment. This experience consists of pre-treatment care planning and conducting a clinic visit to inform the chemotherapy-naive patient before treatment to potentially improve the patient's overall treatment journey.

Setting

According to Oncology.stanford.edu. (2019) the specialized care offered in these oncology clinics includes advanced treatment and supportive, compassionate care to treat every stage of breast and gynecologic cancer, including genetic counseling, participation in clinical trials, and survivorship support. The website states that they are family-centered and merge advanced technology and team-based supportive care to assist patients with their treatment plans (Oncology.stanford.edu, 2019). This team-based care includes an oncology nurse experienced in treating cancer patients and is vital to the multidisciplinary care coordination program. Members of this team include the Medical Doctor (MD), Advance Practice Provider (APP), Oncology Nurse Coordinator (NC), Clinical Administrator (CAA), and Medical Assistant (MA). They all play an essential role in helping personalize the treatment plan.

Nurse coordinators in this DNP student's clinic are not fully utilized as supportive clinical professionals to help offload the educational burden from the APP to optimize team-based care. A current high-level initiative in the Women's Cancer Center clinics to help transition the nurse coordinator to be more patient-facing and involved with patient education is underway. This project supports this focus to succeed by utilizing the NC to offload this educational visit from the APP allowing the APP to increase their patient volume in independent clinics with a resulting increase in financial viability for the clinic.

Specific Aim

This project's global aim was to improve chemotherapy teaching for newly diagnosed cancer patients by implementing standardized education and documentation to enable the nurse in the outpatient clinical setting to teach the patient population competently. This DNP quality improvement project introduced a clinic-specific toolkit in educational training for the nurses to allow patients and caregivers to know what to expect during their chemotherapy routine and improve the patient experience at the first treatment visit.

Improvements in this DNP student's local setting have allowed for expanded use in other cancer outpatient clinics to help encourage the NC to independently teach the pre-treatment education as the toolkit is easily modified for a specific cancer population. The project was implemented in December 2019. Measurable project outcomes included:

RN knowledge base related to imperative *information necessary* to educate the patient before the first treatment will increase by 20%.

RN knowledge base related to the *nurse's role* in conducting a pre-treatment educational visit will increase by 20%.

RN knowledge base related to how the pre-treatment educational visit will be *scheduled* will increase by 20%.

RN knowledge related to how to *document* the pre-treatment educational visit will increase by 20%.

Available Knowledge

PICO(T)

This review investigated and identified the current practice of oncology patient pre-treatment education and strategies utilized to improve communication of this critical phase of the patient's care. The following PICO(T) question was developed to direct the search for nurse-led education's effectiveness and use of an evidence-based toolkit that would benefit patient care in the oncology clinics at Stanford Healthcare: In the breast and gynecology oncology clinics, does the use of a standardized chemotherapy teaching toolkit, as compared to no standardized process, increase the nurse's effectiveness/confidence to conduct the patient's pre-treatment educational clinic visit?

Search Methodology

I conducted a comprehensive literature review, utilizing the most up-to-date evidence-based information to justify and gather tools for this project. Topic-specific keywords were used, such as a nurse, nurse coordinator, patient education, navigator, and chemotherapy teaching. Databases searched included the Cumulative Index to Nursing and Allied Health Line (CINAHL), PubMed, Oncology Nursing Society (ONS), Google Scholar, and Academy of Oncology Nurse Navigators utilizing English-language material published between 2008 to 2020 Many systemic reviews and articles discussed how the nurse as a patient educator helped increase patient satisfaction.

The extensive literature review identified approximately 20 articles with the potential to be utilized for this process. Papers selected for inclusion were those most relevant to this author's intervention and specific to the PICOT question. The Johns Hopkins Nursing Evidence Appraisal tools were used (Dang & Dearholt, 2018) to identify the exact steps necessary to

evaluate the evidence to determine the practice question and develop recommendations related to practice change. A summary of the final eight articles deemed most relevant is presented below.

Review of the Literature

Jivraj et al. (2018) discussed how a nurse-led chemotherapy educational class increased patient knowledge to decrease anxiety and made sure the patients had the necessary information pre-treatment to reduce post-treatment confusion related to side effects. The authors reviewed data at a large oncology cancer center over one month. Nurses collected metrics relating to 37 patients who started a new treatment. Post-treatment phone call logs showed that out of the 168 calls, 139 were related to symptom management, with six having to do with medication questions and 23 about scheduling. With approximately 83% of needs related to symptoms, it was determined that it would behoove the center to develop a tailored pre-treatment educational class. The evidence-based material was gathered, and a course was designed to teach the necessary information with a notable decrease in post-treatment patient-related questions.

Unfortunately, metrics were not collected, but according to the authors, the post educational patient evaluations showed that individualized pre-treatment education was more valuable concerning a broad group class than one that was not tailored to specific chemotherapy agents. This project could help support a pre-treatment educational visit to help the patient gain the necessary knowledge of treating post-treatment potential side-effects without sending a message or calling the team with every concern. It also showed the value of giving this visit in an individual format versus a generic class.

Mann (2011) conducted a quality improvement project, highlighting the benefits of having the oncology nurse deliver the individualized pre-treatment patient teaching in a controlled learning environment. This educational intervention aimed to improve the current

system of providing education to newly diagnosed patients with cancer by assessing individual patient needs and providing education before treatment. Methods included identifying two groups of patients, Group A, those newly diagnosed and given the intervention (teaching by the nurse), and Group B, former treatment patients who did not receive this teaching. Both groups were then asked how the educational information from the nurse could be improved. The study found that group A participants were overwhelmingly satisfied with the teaching.

In contrast, group B had numerous suggestions on improving the pre-treatment education to navigate post-treatment sequelae. This study was helpful as it showed the importance of utilizing an assessment tool to evaluate patient literacy level, reading skills, cultural or religious aspects, available support systems, and anxiety levels before giving patients information about their upcoming treatment. The data amassed in this study also shows that it would be beneficial to conduct the NC educational visit before the first treatment and to individualize the education to address specific needs and preferences.

An existing pre-treatment patient educational study was evaluated at a large academic outpatient oncology facility. The author intended to see if eighty-one cancer patients and caregivers who were shown a video followed by a nurse-facilitated group educational class found this information helpful in managing post-treatment side effects. According to Fee-Schroeder et al. (2013), this coordinated curriculum had previously not existed. Of those participants who did not already begin chemotherapy, (n=42) was given an initial survey which showed that 98 % of patients and caregivers felt the intervention increased their understanding of side effects and how to manage them. Results also showed that 98 % felt this education increased motivation to utilize self-management strategies such as increasing physical activity and fluid intake, as well as modifying dietary behaviors. Other themes identified that the participants

planned to modify their behavior and communicate more frequently with the medical team regarding ways to cope. The survey was again completed at eight weeks, and 24 participants (69%) reported they continued to use these strategies learned in the class.

The authors stressed the limitations included using a convenience sample in that the chemotherapy class was optional, and those who did attend were potentially more motivated to learn. The authors also did not assess the nurse discussion and video value separately, so benefits could not be attributed to either intervention. Lastly, although the questionnaire was based on prior patient surveys, it was not validated.

A randomized, controlled study by Aranda et al. (2011) was conducted to assess how pre-treatment chemotherapy education would affect patient distress, treatment-related concerns, and the severity of post-treatment side effects of patients commencing chemotherapy. One hundred and ninety-two cancer patients were recruited to receive various educational interventions before the first treatment (intervention 1), a follow-up telephone call 48 hours after the first treatment (intervention 2), and a final in-person review immediately before the second treatment (intervention 3). After measuring patient outcomes from baseline (T1) and before proceeding with cycle 1 of treatment (T2) and cycle 2 (T3), it was found that patient distress was not significantly reduced. However, they did find that these pre-treatment interventions did show a significant decrease in psychological (P=0.027), procedural concerns (P=0.03), and a reduction of symptoms of vomiting (P=0.001) by T3. Its findings suggest promise in that pre-treatment chemotherapy education shows some improvement in patient treatment-related concerns along with physical/psychological outcomes. They also recommend further research with more robust patient populations to generalize the findings across varied settings.

Dalby et al. (2013) discussed a process improvement project conducted by a team of oncology nurses that utilized three interventions as "a checklist, a treatment-specific calendar, and a patient education assessment survey" (p. 473). Patient satisfaction related to this education was evaluated one month after implementation by distributing a five-point Likert-type scale questionnaire to patients at their third treatment visit. This information helped guide follow-up information specific to educational and written material to give to the patient. Outcomes reported 53 patients scored an average satisfaction score of 4.86 (on a scale of 0-5) regarding how patients manage side effects after the intervention (Dalby et al., 2013). The most significant increase was found regarding patients reporting what to expect during their treatment from a baseline score of 91% and how to manage side effects score of 87% with a post-intervention satisfaction score of 97% in both knowledge and ability to manage chemotherapy-related side effects. This study is essential as it showed that utilizing materials such as checklists, calendars, and patient surveys, which are readily available, may help increase patient satisfaction related to patient education. A pre-treatment toolkit, which this DNP student compiled, would contain all relevant evidence-based material in an easy to utilize format.

Wagner et al. (2018) discussed whether newly diagnosed cancer patients have an improvement in the quality of life and overall patient experience with the intervention of a nurse navigator involved in their supportive care. Two hundred and fifty-one adult patients recently diagnosed with breast, colorectal, or lung cancer were randomized to receive usual enhanced care (n-=118) or nurse navigator support (n=133) for four months. The primary care physicians were utilized as units of randomization in a two-group cluster-randomized, controlled trial. Self-reported measures from The Functional Assessment of Cancer Therapy-General (FACT-G), Quality of Life scale, three subscales of the Patient Assessment of Chronic Illness Care (PACIC)

were collected at baseline, four months, and 12 months via a self-reported experience survey. According to the authors, baseline mean scores for the population were higher than for random samples of adults with cancer (83 v 80). This finding, according to the authors, may be that the cohort only consisted of patients who were receiving treatment with an intent to cure and not palliative, and high socioeconomic status of the enrollees. The patients who received the nurse navigator intervention had significantly higher scores on the PACIC summary scores as noted by higher mean scores received at four and again at 12 months. Study limitations did include a limited sample size. The authors concluded that nurse navigator support for patients with an early diagnosis of cancer improves the patient experience and reduces care problems compared with usual enhanced care. Still, the quality of life was not differentially affected.

A study conducted by Munoz, Farshidpour, Chaudhary, and Fathi (2018), found that newly diagnosed cancer patients face challenges related to delays in care, lack of information, and inadequate attention to emotional and social problems. Incorporating a cancer nurse navigator helps to improve coordination and communication to increase patient satisfaction and care. The purpose, as described by the authors, was to evaluate a multidisciplinary cancer care model at two endpoints: (a) time from diagnosis to initiation of treatment and (b) an average number of missed appointments.

This retrospective cohort study was completed to determine if an Oncology Nurse Navigator (ONN) effectively improved these two variables. The experimental group included patients assigned to an ONN, 34 men and 26 women. The control group was not given an ONN and consisted of 35 men and 25 women. Findings suggest that an ONN's inclusion as part of the multidisciplinary cancer care model experienced a significantly shorter time between diagnosis to treatment ($p < 0.001$) than those not assigned an ONN. They also found no statistical

difference in missed appointments between the two groups (p = 0.7). Findings further established that the ONN's inclusion helped facilitate the number of patients referred to the multidisciplinary tumor board review. Patients referred to the tumor board have shown to have better outcomes. Lastly, the authors discussed a potential bias within the study because it was conducted within a multidisciplinary cancer care model, and that reality may have affected outcomes as multidisciplinary care centers tend to have higher levels of care in general.

Apor et al. (2017) gave oncology patients a pre-evaluation survey to assess their perceived understanding of various treatment topics after discussing the proposed treatment with their medical oncologist. The patients then received teaching by an oncology nurse, and the survey was re-administered when they returned for their first and second treatment cycles. The goal was to evaluate the effect of a nurse-led chemotherapy teaching session on the patient's knowledge, anxiety, and feeling of being prepared for the treatments. As noted by the authors, one hundred and ninety-six patients enrolled in the study and completed a survey before their teaching. One hundred eighty-two patients completed the survey again before cycle one. Finally, a third survey was conducted by one hundred and seventy-one patients. Responses noted at the second cycle of chemotherapy showed no statistically significant decrease in how patients felt contacting a physician caused them to feel anxious (p=0.0801) or how treatment-related side effects caused anxiety (p=0.2737). Statistically significant increases were observed in three patient indicators such as patients' perceived knowledge of the treatment schedule, potential side effects, and medications to help prevent treatment-related side effects (p= <0.001). Study limitations, as noted by the authors, were that the survey instrument was not previously validated. A group of clinical oncologists reviewed the tool for construct and content validity before initiation to address this lack of validity. Also, the authors did not collect information

related to the patient's disease stage. This information may have affected the results as some stages are not curable, and only palliative options were available to the patient.

Summary of the Evidence

Much heterogeneity exists in the literature and suggests that a well-structured educational intervention related to the NC teaching pre-treatment information to chemotherapy naïve patients helps increase patient knowledge and decrease anxiety. This education has the added benefit of enabling the patient to self-manage common treatment-related side effects. However, few articles discussed how a nurse navigator educating patients was a cost-effective method and how nurses felt their educator's role helped the navigation process. A summary of the most relevant evidence is presented in an evaluation table (Appendix C for Literature Review Evaluation Table).

Rationale

A well-developed planning model such as Precede-Proceed enabled the process to be more effective and efficient. This model was first proposed in 1974 by Lawrence W. Green, a public health education specialist, as an evaluation framework. It became known as Precede in 1980 and later expanded upon by Green and Kreuter in 1991 to include Proceed (Porter, 2016). This model, as explained by Connon and Salazar (2004), utilizes the stages of assessment (Precede) and intervention (Proceed) by breaking it down to understand further the key elements such as policies, regulations, and resources in play that will either benefit or hinder the measure. The authors also identify the five types of assessment required to adequately "diagnose" the population's unique needs before proceeding, such as social, epidemiologic, behavioral/environmental, educational/organizational, and administrative/policy. Concerning social diagnosis, assessing the population's perception of its own needs is necessary. The

population related to this DNP project are the stakeholders involved in making this plan a success along with the oncology patients it will affect. As previously discussed, the staff educated on the toolkit are the NCs in the oncology clinics, which utilized the information to teach newly diagnosed cancer patients the most relevant, evidence-based information before they commenced their first treatment.

The determination of which health problems are of the most significant concern to the population were epidemiologic. This included breast and gynecological newly diagnosed patients with cancer who will receive treatments to help "cure" or potentially decrease the risk of cancer recurring and/or becoming "incurable." Behavioral/environmental, as determined by the authors, would identify which problems would have the most significant importance to the population. For this change of process project, it is helpful to identify stakeholders' attitudes, knowledge, and beliefs related to reinforcing reward and enabling factors that would support cultural change. According to Melnyk and Fineout-Overholt (2011), a culture of "best practice" would need to be established to consistently implement EBP in healthcare organizations. Regardless of their educational status, all nursing staff should be educated and encouraged to utilize evidence-based practice. The authors suggest that it is also helpful to have EBP mentors to help implement and sustain an EBP culture.

As a DNP student in an academic healthcare system, I conducted a presentation early in the process regarding a process improvement plan to clinic stakeholders to introduce and define the project. It was necessary to include information related to how utilizing EBP when undertaking a program such as this was important to ensure patients receive the most relevant information. Learning how to conduct an improvement plan and how to use evidence-based processes will help the staff feel they have a stake in the outcome and success.

Educational/organizational diagnosis relates to establishing how the stakeholders feel their education and skills will enable them to adequately teach the patient population. It also may refer to how they feel the organization has equipped them with the most useful tools to utilize in teaching the patient. The change of process plan educated the stakeholders and encouraged the use of a standardized, evidence-based toolkit.

Lastly, identifying policies, regulations, and resources that would either hinder or enhance implementation is referred to as administrative policy (Connon & Salazar, 2004). This is best accomplished by involving leadership, clinical educators, and internet technologists (IT) to distinguish what information is appropriate to utilize with Stanford Healthcare branding and how to potentially bill for the NC pre-teaching visit. For this process improvement plan, this author used leadership to advise regarding the overall scope and potential resources that could be tapped into to support the project. The oncology nurse educator was then introduced to this project with an aim to increase the project's breadth and communicate the author’s intention along with reaching out to other oncology clinics at Stanford Healthcare. IT educators were then involved in designing an electronic version of the toolkit to share this information more easily via electronic means, help with literacy review and language development.

After assessing the population, the authors suggest moving on to the proceed measure of the model. This includes planning, implementation, and evaluation. It is known that making decisions about behaviors is sometimes complicated. The model considers this complexity and helps set priorities and determination making in a systematic approach to include implementation, process and impact, and outcome evaluation.

As further described by Crosby and Noar (2011), this planning model would help explain the phenomenon of conducting a process improvement project and identifying measurable

variables as it enables to serve as an organizing framework aimed at a health promotion effort. The model follows the critical point in the process of planning "backward," meaning that it illustrates "working from the end goal to produce objectives and sub-objectives that, if met, will culminate in the realization of that goal" (p. S9), contributing to a logical endpoint.

Section III: Methods

Context

Clinic leadership must ensure staff has adequate education, resources, and support to provide exceptional, competent, and safe care. As an independent, not-for-profit organization, The Joint Commission (2018) certifies healthcare organizations nationwide to maintain specific performance standards. Their mission is to improve the public's health by continuously evaluating healthcare organizations and inspiring them to provide safe, effective care of the highest quality and standards. Dickson (2018) further described that accreditation organizations such as the Joint Commission help organizations improve care quality by reducing process variation across organizations.

Stanford Healthcare, as a Magnet© designated facility, and according to its website, Stanford HealthCare (2019) would be responsible for ensuring its nurses had adequate education development to provide greater autonomy to deliver the best care. Furthermore, according to the American Association of Colleges of Nursing (AACN) (2018), Doctor of Nursing Practice (DNP) educated nurses are well prepared to provide evidence-based, quality improvement project management initiatives to improve patient outcomes. The research confirms this statement as multiple studies show a 10 percent increase in baccalaureate-prepared nurses involved in patient care, showed a nine percent decrease in patient deaths. Advanced nursing education has a significant impact on nurses' knowledge and competencies and, therefore, their value to the practice setting (AACN, 2018). This data suggest a DNP student is well equipped to lead process improvement interventions. This successful change of practice in the Women's Cancer Center, Stanford Healthcare local setting has also effectively brought about

improvements in patient care education in other oncology clinics through modification and use of this educational endeavor.

Ultimately, patients were most affected using this process improvement change as they benefitted from getting appropriate evidence-based, individualized treatment education and toolkit materials to reference. Key stakeholders related to this process improvement plan were the nurses directly impacted by this change in their NC role. Medical providers such as physicians or APP's were also affected as traditionally; the APP gave the pre-treatment education after the physician went over the patient's plan of care. Supportive personnel such as clinical, administrative assistants/ medical assistants are also affected. They helped ensure toolkit availability by providing the necessary information that is readily available for the NC to access and send the toolkit to the patient's home if needed. Clinic leadership in the cancer center is also critical as it was necessary to gain their approval and provide essential resources to succeed (See Appendix B for Agency Letter of Support).

Interventions

I intended to improve the process related to NC chemotherapy teaching through standardized education and documentation to enable the nurse in the outpatient clinical setting to teach the patient population and enhance the patient experience at the first treatment visit. The intervention was chosen to positively impact multiple aspects of the workflow and fill knowledge gaps associated with chemotherapy teaching.

To gain information about the mesosystem that makes up Stanford Healthcare's outpatient oncology clinics, I moderated a focus group that included 19 NCs from other Stanford oncology clinics and infusion areas. The intent was to explore the current state of patient education and teaching along with introducing this process improvement plan. Themes identified

from the well-attended class included: (a) aligning all groups and roles in standardizing chemotherapy regimen teaching (specific chemotherapy regimen teaching and general teaching), (b) provide alternative delivery methods (video, binders, 1:1 teaching, group session), (c) How to sustain the educational system so that it will not become obsolete (See Appendix N for Focus Group Information).

A PowerPoint presentation was conducted for clinic leadership and stakeholders in the breast and gynecology cancer clinics to introduce the intervention, define the quality improvement process, explain the importance of pre-treatment education, review the research, and discuss recommendations going forward. Qualitative information was collected related to nurses' feelings and observations regarding how they felt conducting an educational teaching visit with currently available knowledge and materials.

A toolkit was developed for nurses and patients to utilize when conducting the pre-treatment chemotherapy session. It was requested from clinic leadership that the author develop a nurse-specific checklist to ensure that the nurses had standardized information available to teach the patients. The project's projected implementation was January 2020, after developing the manuscript and prospectus, which was completed in June 2019.

The project included 1:1 educational training of the nurses, which lasted approximately 45 minutes. Some nurses required additional education depending on their level of comfort with patient education and prior work experience. Some nurses found it helpful to sit in on an educational visit with the author to observe prior to conducting an independent teaching session.

Gap Analysis

According to Fee-Schroeder et al. (2018), educating patients about their chemotherapy treatments and potential side effects is standard practice in most cancer centers. According to the

Oncology Nursing Society, it is also a standard of care (Neuss et al., 2017). I conducted a gap analysis before initiating this project with an intention to assess and analyze the current state of NCs role in teaching chemotherapy naïve patient's pre-treatment education. All aspects of this analysis of chemotherapy teaching's current process were completed in collaboration with key stakeholders involved in the teaching process.

Nurse coordinators in these clinics are not fully utilized as supportive clinical professionals to help offload the educational burden from the APP to optimize team-based care. A current high-level initiative in the women's cancer center clinics encouraging nurse coordinators to utilize their education and skills at the highest level to educate its patient population has helped transition the nurses to be more engaged and patient-facing. It would behoove leadership to support a process improvement plan to help move in that direction. It is anticipated that this process improvement plan with the implementation of a unit-specific toolkit will positively impact multiple aspects of the workflow and fill knowledge gaps associated with chemotherapy teaching.

Four objectives were identified from the formal gap analysis: (a) identify information clinic nurse coordinators would deem necessary to conduct a pre-treatment educational visit, (b) develop specific information to be included in the teaching toolkit, (c) improve communication related to the availability of supplemental resources, (d) develop a sustainability plan for current and future resource management along with identifying personnel who will take responsibility of compiling and maintaining the materials (See Appendix D for Gap Analysis).

Gantt Chart

A Gantt chart was then developed to illustrate the timeline related to specific tasks and complete all milestones on schedule for the project. According to Mindtools (2018), this visual

chart can easily be modified and presented to other stakeholders in an easy-to-understand format. The project deliverables are listed on the left, with dates on top to estimate timelines. The project started with a basic literature review and gap analysis. The aim was to carefully determine the problem gaps between current and desired practice and determine if the literature supported an evidence-based change to improve patient outcomes by developing a toolkit to enhance nurse coordinator education. The "gap" was then be formulated into a PICO question, and the problem was further refined to be kept narrow in focus. More extensive and specific literature reviews were then conducted utilizing search terms from the PICO question. Stakeholders particular to the process improvement plan were identified. A proposal to critical leadership was completed to assure buy-in for the strategy and assure the project would be well-aligned with the healthcare organization's mission and goals.

The following steps were then completed and included a plan-specific timeline or work breakdown structure, responsibility /communication matrix, SWOT analysis, and budget. This information was then submitted in a draft of the proposal to the author's DNP chair and the second reader to review and was modified as needed. Implementation of the project commenced after conducting an anonymous four-question Likert scale *NC Pre-treatment education survey* of NCs in the breast and gynecology oncology units, who were responsible for taking on this educational endeavor.

After developing the toolkit and education to support it, the survey was again conducted to compare and determine if there was a positive correlation between the intervention and the project outcomes. Lastly, the findings' summary report was presented to all key stakeholders, and recommendations were assessed for future development (See Appendix E for Gantt Chart).

Work Breakdown Structure

The work breakdown structure (WBS) is an organized example of the typical flow of a "systems development project." According to the University of California Santa Cruz (2019), its methodology is broken down into five work stages: Defining, Planning, Launching, Managing, and Closing to describe a set of activities or deliverables that help move the project forward. Completing a schedule such as this helps organize, define, and tailor the work into more manageable increments.

In the first phase (define), strategies for identifying the evidence-based question were identified by gathering internal evidence and developing a PICO question. A comprehensive, systematic literature review was conducted utilizing the PICO components to answer the PICO question effectively and efficiently (Melnyk, Gallagher-Ford & Fineout-Overholt, 2017). As discussed by Dearholt and Dang (2018), the use of the Johns Hopkins Evidence Appraisal Tools helped to critically appraise the most relevant evidence for use in this review. This phase concluded by presenting the proposal and executive summary to the critical leadership for approval and recommendations going forward.

The (plan) or second stage included establishing key stakeholders, developing deliverables, and defining milestones to be reached. The toolkit development needed a small team of nurses and APP's who worked in the clinic and had experience conducting pre-chemotherapy teaching. A project team kickoff meeting took place as I presented the plan to the breast and gynecology oncology clinics' stakeholders to help communicate my intention. It was recommended that I develop a checklist to ensure consistency in the nurse's teaching.

A focus group meeting was arranged with the help of the cancer center nurse educator. He helped coordinate with nurses from other cancer clinics and infusions areas. This meeting

was helpful as I learned how other nurses were conducting pre-treatment teaching and communicated my intention to a broad scope of oncology clinic nurses.

The third stage (launch) included a breakdown of the project workflow to ensure that project deliverables and milestones were achieved. The first deliverable was creating a written toolkit that included evidence-based information related to managing post-treatment-related symptoms, miscellaneous information, and phone numbers. I then developed a nurse knowledge and attitude survey to give the nurses before 1:1 education and training. The project was implemented in January 2020.

The fourth stage (manage) included using PDSA cycles to ensure necessary modifications were addressed and change to help the process succeed (IHI,2019). This phase of the project was ultimately slowed due to COVID-19 and difficulty completing the nurses' necessary education. After frequent discussion via remote evaluation meetings, the post-survey tool was then completed by the nurses.

The final phase (closeout) consisted of measurement of data and evaluation utilizing Excel software to determine the patient improvement project's success. A sustainability plan was developed, and further modifications were discussed to help make the toolkit more accessible via an electronic version and conduct the clinic visit via remote modalities. A final wrap of the project and resulting data was presented to the stakeholders (See Appendix F for Work Breakdown Structure).

Responsibility Matrix

The project stakeholders' roles and responsibilities are delineated in the responsibility matrix. Specific functions were delegated to include the project unit leader, DNP student, nurse coordinators, and APPs who function as nurse practitioners (NPs) or physician assistants (PAs),

along with medical oncologists. Other significant players included unit leadership and ancillary staff such as clinical, administrative personal, medical assistants, and finally, front desk personnel who work to check patients in and out of the clinic. Recognition of the vital members is a critical part of the project because it delineates all persons and their responsibilities related to the project scope, roles, commitment, and timelines (See Appendix G for Responsibility Plan).

Communication Matrix

It was essential to communicate imperative information to persons at the right time. This communication plan was developed and managed by the DNP candidate to ensure that the project remained within scope, on time, and on budget. The project was initially proposed to clinic leadership via an in-person meeting to provide an overview of the specific goals and potential impact this process improvement plan would have on improving nurse-led pre-chemotherapy teaching.

This project, along with information related to how an evidence-based project can help to improve patient care, was discussed during a presentation to stakeholders with an intent to show energy and help engage the staff early in the process. Ongoing feedback was also facilitated at daily huddles and monthly staff meetings to amend the information in real-time and make relevant changes to improve the process. Several edits were made to the toolkit as relative information was recommended by staff to make sure necessary information was contained to relay to patients prior to starting treatment (See Appendix H for Communication Matrix).

SWOT Analysis

The development of a SWOT analysis was completed to analyze the potential *strengths, weaknesses, opportunities,* and possible *threats* to this intervention. It helped create full awareness of the environment and take a proactive approach to enable the project to succeed.

One such strength this author identified is strong leadership support to allow the NC to independently teach the pre-treatment educational visit. As a large academic institution, the organization encourages nurse leaders to implement evidence-based project improvements. As a Magnet-designated facility, the organization's strategic goals align with American Nurses Credentialing Center (ANCC) to improve patient outcomes (ANCC, 2018).

One internal weakness that was identified is the lack of clinical administrative assistant (CAA) support personnel to offload the nurse's non-clinical aspects of their workflow. NC workflow must be managed to allow them the time to educate the patient adequately. An endeavor is currently being implemented in the clinics to help transition these non-nursing tasks to CAA's and enable the NC to be more patient-facing.

Through this analysis, identified opportunities exist to potentially advertise the role of NC as an integral asset to the team-based Care that Stanford Healthcare gives its patients. Utilizing an NC to assist its patient population in pre-treatment education represents a competitive edge. Other extensive healthcare facilities in the Bay area do not currently employ a clinical professional in this role. This comprehensive individualized education may also have an impact on patient satisfaction scores that will benefit the organization.

Finally, threats would be the possibility of leadership modifying the team-based role the NC currently plays into more of a triage nurse who is less involved in a point-of-care team-based patient teaching. Patient pre-treatment education would then transition to a group session not specific to its treatment plan (See Appendix I for SWOT Analysis).

Budget

This project's budget was designed using an implementation strategy to introduce new education to NC's and the use of a toolkit with an aim to improve knowledge and comfort levels related to how the nurse educates patients starting new treatments. The process improvement plan's direct and indirect costs to develop and implement the project were essential information when considering this process change. The direct costs comprised personnel time related to creating this plan and educating the nurses involved during implementation. The average registered nurse hourly rate, including benefits, according to the manager of these clinics, is approximately 94.00/hr. When the time estimated is 30 minutes educational 1:1 session, the cost associated with educating 13 nurses would be $611.00. The estimated time for developing the toolkit, including pre-and post-surveys and follow-up PDSA, post-implementing of data and its related analysis, costing approximately $22,184.00. Time spent communicating the project proposal to leadership with an average nurse executive salary hour of $114.00/hour, over two 30-minute meetings cost roughly $114.00. Indirect costs include printing surveys and reference tools along with a folder that makes up the toolkit, which costs approximately $330.00. Total estimated costs associated with this 3-month rollout would cost around $ 23,239.00 (See Appendix J for Budget).

Cost/Benefit/Breakeven Analysis

I developed the educational material, and practicum hours were utilized on time spent implementing the project. Costs to produce and implement this project totaled approximately $23,239.00. Educating the NC was completed during 1:1 session time, and staff were kept updated at daily huddles and monthly unit-based committee meetings.

Although it is difficult to place a monetary value associated with this improvement process, its value on the investment (VOI) is evident. The proposed benefits associated with improving nurse coordinator teaching and resulting increase in the patient's ability to self-manage post-treatment care are universally positive outcomes. Stanford Healthcare would see measurable revenue benefits to the health system by expanding nursing roles and allowing the nurse to complete pre-treatment education. By the NC taking over the educational components, the APP would be available to see at least one additional patient per day. Based on the ability for the APP to be able to take one extra patient a day where it can be billed at $1,200, it would take 19.37 patients to break even with the costs of the project ($23,239.00/$1,200=19.37).

It is anticipated that this standardized education and toolkit will also improve nurse engagement as a supportive team member in the clinic and potentially reduce nurse turnover in the role. The literature supports this assertion as it has been shown by Wan, Li, Zhou, & Shang (2018) that links between nurse turnover have been shown to be decreased through the development of interventions to support the work environment. These nurse-led clinics also provide a professional environment where nurses feel empowered in the multidisciplinary role, and it is anticipated that nurse retention could improve due to increased satisfaction in the role as an integral part of the patient's multidisciplinary care team.

Return on Investment

Dividing the project's anticipated net income by the cost of the investment, you would obtain a return on investment (ROI) calculation. For this educational improvement plan, the expected net revenue could be as much as $288,000.00 over 12 months divided by its cost of implementation $23,239.00 with a 12.4 percent ROI.

Revenue

Over time it is expected that the project will continue to show improved patient outcomes, and costs associated will decrease as upfront costs related to development and implementation is complete with periodic review and improvements to be made. With reduced average patient contact time spent by the APP educating the patient and offloading this to the nurse coordinator will allow for the APP to see an additional patient per clinic day, which at the current rate of $1,200 per visit would equate to an additional $288,000.

Additionally, there is also a potential for the NC to bill for caregiver education under Medicare Part B utilizing education codes and documentation supporting the level of work performed using a Level 3 or 4 Visit RVU. As noted by (Centers for Medicare & Medicaid Services [CMS], 2020), this may generate approximately $25-35 charges per visit, which could equate to as much as $6000 over a year's time (See Appendix K for Expected Revenue).

Study of the Intervention

This project required a review of the existing practices in two large academic oncology outpatient clinics to assess how patients received education prior to starting new chemotherapy treatments. I then developed a toolkit that contained evidence-based materials that were highly significant to oncology patient care. The use of the information contained in the final toolkit materials was determined to be relevant after review by leadership and clinic colleagues.

I led a kickoff meeting for the stakeholders with the intent to introduce the QI project. Education was shared on how evidence-based projects are conducted following the Institute of Healthcare Improvement's Model of Improvement (IHI, 2021). Gap analysis, project management, and Plan-Do-Study-Act (PDSA) cycles were introduced. It was determined after this presentation that a nurse coordinator checklist should be developed for use in determining

that all necessary information is standardized and utilized in the education component (See Appendix 0 for Pre-Treatment Nurse Checklist).

After implementation of the project, comparisons were made between the nurse's perception of how they felt this education and toolkit would help them independently teach and document pre-treatment patient education, along with how this increased knowledge would positively impact their workflow as nurse coordinators. Evaluation of the change of practice DNP project required the use of a *de novo* evaluation tool that I developed to help determine outcome measures related to the intervention. This tool is without established validity or reliability but has shown to be a valuable lesson learned in evaluating this project.

Outcome Measures

Data Collection Tools

This project's primary outcome measures included an anonymous [pre-and post-intervention] *Nurse-Led Pre-Treatment Teaching Education Experience Survey,* consisting of a 4-item author-developed *Clinic Specific Toolkit Feedback Survey*. The survey was developed and delivered to the breast and gynecology nurses at the monthly cancer clinic-based meeting and served as the tool development process. It included clinic-specific knowledge, preparedness with teaching, documenting, and perception of the teaching visit. Responses ranged on a 4-point Likert-type scale from "Strongly Agree" to "Strongly Disagree." Two open-ended questions were also included to gain a perception of the challenges of conducting this educational visit, along with suggestions to improve satisfaction (See Appendix L for Data Collection Tools).

Analysis

The project's participants included (N=13) nurse coordinators working in breast and gynecological outpatient cancer clinics at Stanford Healthcare. APPs were not utilized in the data

as I wanted to focus solely on how the change in process would affect the nurses in those microsystems who will be adapting this change in practice. The pre-intervention survey results were used as a baseline for the current perception of a nurse-led pre-treatment teaching experience. Quantitative analysis was compared from the pre- and post-surveys with results imported into an Excel spreadsheet. Descriptive statistics were used to analyze the data. Information obtained from the pre-and post-survey qualitative data was used to inform and understand how nurse perception of the training affected their knowledge and comfort levels as a nurse coordinator and patient educator. The positive findings show that the educational information and basic tenets of this toolkit could be easily modified and adapted in other clinics across Stanford's outpatient macrosystem. It is also anticipated that the information could easily be modified over time and adapted as new evidence was received.

Ethical Considerations

According to American Nurses Association (ANA) (2017), the nurse's code of ethics and human rights statement dictates that nursing must observe a patient's dignity and human rights while committing to protect and promote social justice. This quality improvement (QI) process improves the nurse coordinator's ability to conduct a pre-treatment educational visit that respects the participant's privacy and dignity.

It is ethically and morally right for patients to expect the best evidence-based information to manage anxiety and potential post-depressive symptoms after receiving the recommended cancer treatments. The appropriate care does not stop after the patient decides to commence with treatment. This is when the most impact can be made to help the patient become educated and proactive to decrease an unpleasant experience. Without this information, the patient may

experience side effects that contribute to discontinuing treatment before it is recommended and have the cancer progress to an uncurable stage.

As a DNP student attending a school that aligns with the Jesuit faith's values and ethics, I feel this project incorporated those practices of c*ura personalis*-care of the whole person and brought forth multiple components of caring for the patient (USFCA, 2019). Implementing education to nurses with the goal of enabling the patient to utilize self-care interventions with a resultant decrease in anxiety fulfills a core tenet of the Jesuit faith. The nurse-patient bond is also strengthened as this teaching enables human interaction to be accomplished in a caring manner.

The process for gaining approval for conducting this change in process evidence-based improvement plan involved obtaining authorization from both the University of San Francisco and Stanford Healthcare. The university's SONHP DNP committee determined this project exempt from the Institutional Review to protect human subjects (IRB) after reviewing the student's statement of determination. The project was deemed a process improvement project. Stanford Healthcare, specifically the Women's Cancer Center oncology leadership, also supported this project and discussed this and future publications. As a quality improvement project, all information and data obtained will remain compliant with the Health Insurance Portability and Accountability Act (HIPAA) laws and does not show a conflict of interest (See Appendix A for IRB Document).

Section IV: Results

Qualitative Findings

Information obtained from the Oncology clinic focus group showed common themes aligning all groups and roles to standardize chemotherapy regimen teaching throughout the oncology clinics and treatment areas. It would help provide alternative delivery methods and ensure that the educational system would not become obsolete. The project was introduced to the stakeholders via a PowerPoint presentation. Leadership found it necessary that a checklist be developed to ensure the nurses were teaching information in a standardized approach.

The pre-treatment teaching education experience survey contained two open narrative questions and information suggests:

Increased ability to teach this oncology population will lead to reduced post-treatment patient messaging and pre-treatment anxiety.

The NC role would be highlighted as a member of the patient's team.

This educational visit early in the treatment allows the NC to establish a positive nurse-patient relationship and become an essential resource. This visit helps to create a more collaborative relationship that benefits both the patient and the nurse.

Allows the nurse to practice more fully within their scope of practice and reach their potential as a healthcare provider.

Quantitative findings

Thirteen nurse coordinators from the Breast and Gynecology oncology clinics were invited to participate in this educational endeavor. They were given a pre-and post-educational survey utilizing a four-point Likert scale ranging from strongly agree to strongly disagree.

Four questions evaluated how comfortable the nurses were with the current state of nurse-led pre-treatment education. The questions focused on what was expected, specific information needed to teach, and how to schedule the patient and document accordingly (see results of the pre-education survey in Table 1 below).

Table 1.

Pre-Education Survey

Question (Range = 0.00 to 4.0)	Mean	SD
I know what is expected of me in conducting an independent nurse pre-treatment patient educational visit.	2.90	0.86
I know what specific information should be included in the nurse pre-treatment patient educational visit.	2.80	0.89
I understand the process related to how a patient is scheduled for the nurse pre-treatment patient educational visit.	2.40	0.65
I understand the process of how to document the information from the nurse pre-treatment patient educational visit in EPIC.	2.50	0.77

The mean scores documented were less than 3 for all the questions, suggesting that the nurses did not feel they had the knowledge and materials to conduct the patient teaching and schedule and document the visit. Although the nurses have experience working with oncology patients in the clinics, the findings suggest that they would need training regarding how to best educate patients before starting treatment.

The post-nurse education/toolkit development scores showed improvements in all areas of conducting the pre-treatment educational visit with increased mean values greater than 3 (see Table 2 below).

Table 2.

Post-Education Survey

Question (Range = 0.00 to 4.0)	Mean	SD
I know what is expected of me in conducting an independent nurse pre-treatment patient educational visit.	3.60	0.50
I know what specific information should be included in the nurse pre-treatment patient educational visit.	3.70	0.48
I understand the process related to how a patient is scheduled for the nurse pre-treatment patient educational visit.	3.50	0.51
I understand the process of how to document the information from the nurse pre-treatment patient educational visit in EPIC.	3.50	0.51

I then completed a t-test to determine if the scores obtained were due to the educational endeavor and not by chance. A statistical significance was set at $p<0.05$. The t-test, p-value results indicate that the data received pre-and post-survey were statistically significant for all questions (see Table 3 below).

Table 3

Statistical Significance Pre-Post Test

Participants (N=13)	Question 1 Pre	Question 1 Post	Question 2 Pre	Question 2 Post	Question 3 Pre	Question 3 Post	Question 4 Pre	Question 4 Post
Mean	2.92	3.62	2.85	3.69	2.38	3.54	2.54	3.46
Std. Deviation	0.86	0.51	0.90	0.48	0.65	0.52	0.78	0.52
t-test, p-value	0.02		0.01		0.01		0.01	

To follow the nurse's perceptions and feelings related to conducting a patient pre-treatment educational visit over time, I engaged the support of clinic leadership to have the nurses complete a follow-up survey in the following months. It is essential to continue to assess if the toolkit information is up to date and supports current evidence (See Appendix M for Pre- and Post-Survey Results).

Section V: Discussion

Summary

Data to support the project shows that project aims were met. See discussion below.

Aim one: Achieve more than 20 percent increase in RN knowledge base related to imperative information necessary to educate the patient before the first treatment. Comparing data from the pre-and post-survey questions indicated a rise of 24 % related to what information was essential to discuss with the patient at the pre-treatment educational visit.

Aim two: Achieve more than > 20 percent increase in RN knowledge related to the nurse's role in conducting an independent pre-treatment educational visit. Data obtained from pre-and post-survey questions showed a rise of 32 % of how the nurses felt they were knowledgeable about their role in conducting this educational visit.

Aim three: Achieve more than 20 percent increase in RN knowledge related to scheduling the pre-treatment educational visit. This question had the most significant increase in nurse knowledge associated with preparing the educational visit as the data showed a rise of 46 %.

Aim four: Achieve more than 20 percent increase in RN knowledge related to the pre-treatment educational visit documentation. This question and the data amassed showed a rise of 40 % of nurses' understanding of documenting the pre-treatment clinic visit.

Overall, the data demonstrate an increase in nurse knowledge of 35%. This positive statistic shows this DNP student met the goals of increasing nurse knowledge by 20% to take on this educational endeavor. This project's success in the Stanford Healthcare breast and gynecological oncology clinics helps potentially bring about positive change related to the role

of NC. This change in process could also be adapted for use in other oncology clinics throughout the system.

It is anticipated that this improved pre-treatment education will enhance the overall patient experience and strengthen the nurse-patient bond as this evidence-based communication shows compassion and empathy related to helping the patient manage treatment-related side effects. Increased communication between the treating team and the patient will help encourage the patient to reach out to the clinic if they are unable to self-manage treatment-related side effects. The information included in the toolkit encourages the patient to notify the clinic or after-hours nurse line if they felt they needed additional recommendations. Utilizing established outpatient resources may help to decrease hospital ED visits as many concerns could be addressed by the treating team or triage nurse before needing admission to the hospital. This may help decrease overall healthcare costs upstream. It might be of value to conduct a retrospective review of the data to see how this relationship may affect patient outcomes and patient satisfaction scores.

Interpretation

As a cancer patient moves beyond diagnosis, there becomes a need for the provider to introduce the plan of care along with education related to evidence-based treatments to give the patient the best curative chance. As the delivery of these treatments continues to move toward outpatient care, herein lies the challenge of sharing important information with the patient to improve health outcomes.

The oncology nurse's ability to educate its patient population as part of the interprofessional clinical team should not be taken for granted. Not all nurses are well prepared to take on this endeavor. Adapting and embracing the role of patient educator as a fundamental

nursing responsibility, with the proper preparation, will give the nurse the ability to shape patient outcomes along with their primary care environment (Marshall & Sigma Theta Tau, 2016). The challenge then becomes how to communicate this information before the patient commences with treatment effectively.

Patients are willing to take steps to effectively self-manage the side effects of cancer treatments if they are empowered with evidence-based information and tools. As a result of increased awareness of how to lessen unpleasant symptoms, we also anticipate increased compliance and improved health outcomes.

Limitations

There were limitations encountered regarding the implementation of the project. This author initially anticipated to teach the nurses and pilot the intervention over three months, but due to Covid-19 implications, the author extended this aspect of implementation to approximately five months. As noted by the CDC and other governmental agencies, it was recommended to conduct work via remote modalities and stay at home to avoid illness spread and exposure (CDC, 2020). Stanford Healthcare mandated staff to take time off to help with the institutional budget and transition to remote work. This made it challenging to communicate effectively with the nurses and encourage them to conduct pre-treatment educational visits.

Some promising outcomes of remote work included the necessity of conducting some patient care sessions via online modalities, such as Zoom or Video Visits. These online visits allowed us to modify our workflow to accommodate patients that may live far or have concerns with in-person clinical or educational visits and is a process that we anticipate continuing post-COVID-19 pandemic.

Conclusions

This project aimed to develop, implement, and evaluate the effectiveness of using unit-specific education and tools to improve the NC's ability to conduct a pre-treatment educational visit for newly diagnosed cancer patients in outpatient cancer clinics. The project was supported and developed using the best available evidence-based information, current literature, and established project management methods. This standardized toolkit enables the NC to schedule and efficiently teach a patient necessary information and, in turn, adequately document this in the patient's electronic health record (EHR). This change of practice positively affects NC workflow as the NC now has the necessary education and tools to work at or above their education and training level. This patient-centered approach also helps the oncology team as the APP's are no longer asked to conduct this teaching and can increase patient volumes.

The nurse-led pre-treatment training increases patient's knowledge before undertaking a stressful and potentially unpleasant chapter in their lives. The information gained allows the patient to self-manage side effects proactively and gives them a sense of control when life seems uncontrollable.

Long-term effects of the use of this educational information and toolkit are that it is easily modified to be utilized in a variety of outpatient oncology clinics throughout the larger system, and new staff may be educated in its use. I have participated in several meetings with clinical educators aligned with outpatient and inpatient care at Stanford Healthcare to discuss this QI project and its contents and how it may be utilized in other areas at Stanford. This is an ongoing effort that I intend to be aligned with to offer my support as needed. It is also anticipated that clinic leadership will ensure ongoing use and sustainability of this process as positive results

have shown improved quality of care, increased nurse coordinator satisfaction and engagement, along ease of transferability to a global audience.

Section VI: Funding

Funding for the cost of materials, flyers, printing, and toolkit information came from Stanford Oncology Women's Cancer SQIMM funds. This DNP candidate's work consisted of voluntary use of time to develop the toolkit content, implement the process, and analyze the findings. All the time spent on the project was approved and encouraged by the student's clinic manager. I received no additional or outside funding.

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Section VIII: Appendices

Appendix A: IRB and Statement of Determination

UNIVERSITY OF SAN FRANCISCO | School of Nursing and Health Professions

DNP Statement of Non-Research Determination Form: Laura Oka

Title of Project: Improving Nurse-Led Oncology Pre-Treatment Education

Brief Description of Project: The oncology nurse coordinator's role in a large academic outpatient oncology clinic is continually being modified to assist the patient care team better to improve patient education. This education consists of pre-treatment care planning and conducting a clinic visit to educate the chemotherapy-naive patient before treatment. Historically, this education has been given by the Advanced Practice Professional (APP). As nurse coordinators are now taking on a more prominent role in patient education, a gap has been identified about how effective the nurse is in conducting this educational visit and having access to standardized references to utilize during the clinic visit.

A pilot had been proposed and is supported by leadership to evaluate the effectiveness of instituting a clinic-specific reference toolkit to improve the Registered Nurse (RN) comfort level of conducting the visit.

A) Aim Statement: By January 2021, develop, implement and evaluate a pre-treatment toolkit to be utilized for newly diagnosed cancer patients at Stanford Healthcare outpatient oncology clinics.
B) Description of Intervention: This Doctor of Nursing (DNP) change of practice project will have several phases.

The first phase will involve the DNP student working with key stakeholders to develop the clinic-specific evidence-based reference tools to be utilized during the pilot. As the facilitator in this project, the DNP student will build a compelling business case based on peer-reviewed literature presented to leadership to gain approval for the pilot project.

The second phase will involve working with the clinic RN's to engage and elicit feedback via an anonymous survey to improve the toolkit's effectiveness and before the pilot's implementation process and launch.

The third phase will be the pilot's actual launch and gaining feedback related to the toolkit's flow. A post-survey will be conducted to assess the RN's comfort and confidence in independently conducting this educational pre-treatment clinic visit with the toolkit's assistance.

Identified stakeholders at a clinic-based council meeting will anonymously provide feedback by completing a brief 5-point Likert-type scale to assist in and give feedback on the proposed reference tool content, organization, appropriateness, and ease of use help in tool development.

All RN's who utilized the new process and its content will then be asked to complete a post-pilot 5-point Likert-type scale survey related to their comfort level and confidence in conducting the pre-treatment visit, utilizing the toolkit, and rate this perceived experience. Results will be measured by comparing pre-and post-intervention mean scores.

C) How will this intervention change practice? By implementing an evidence-based reference toolkit, it is anticipated that improvements will be made to increase the nurse coordinator's effectiveness to work at the highest level of their education. This will then allow the APP to focus on seeing patients independently in-clinic appointments.

D) Outcome measurements:

1. RN knowledge base related to imperative information necessary to educate the patient before the first treatment will increase by 20 %.
2. RN's ability to utilize specific information included in the nurse pre-treatment toolkit will increase by 20 %.
3. RN knowledge base related to how the pre-treatment educational visit will be documented will increase by 20 %.
4. RN knowledge base related to how a patient is scheduled for a nurse pre-treatment patient educational visit will increase by 20 %.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:
(http://answers.hhs.gov/ohrp/categories/1569)

☒ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). The student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before the project activity can commence.

Appendix B: Letter of Support

Stanford
HEALTH CARE

11/12/18

To Whom it may concern,

This is a letter of support for Laura Oka to implement her DNP Comprehensive Project in the Breast Oncology Clinic at Stanford Health Care, Palo Alto. We give Laura Oka permission to use the name of our hospital in her DNP Comprehensive Project Paper and in future presentations and publications.

Sincerely,

Mitra Kotchevar, RN, MSQA
Clinic Operations Manager
Stanford Women's Cancer Center
Cell: 650-850-2100
Email: mkotchevar@stanfordhealthcare.org

Appendix C: Evidence Evaluation Table

Citation	Evidence Type	Sample Size & Setting	Study Findings	Limitations	Evidence & Quality Level
Jivraj et al. (2018)	Quality Improvement	N = 37/ Canadian outpatient clinic	Individual pre-treatment education is more valuable than a broad group class	Metrics were not kept/Small sample size.	Level V, Quality B
Mann (2011)	Quality Improvement	N = 72/ Outpatient clinic in Northern Alabama	Assessing individual patient needs along with effective education ensures a more positive patient experience	Small sample size	Level V, Quality B
Fee-Schroeder et al. (2013)	Mixed method Quality Improvement	N =81/ Large academic outpatient cancer center	Facilitated discussion by an oncology nurse increases patient knowledge r/t chemotherapy side effect management and self-care strategies to manage	Two limitations noted: the use of a convenience sample and questionnaire was not validated	Level V, Quality B
Aranda et al. (2012)	A parallel group-prospective randomized, controlled trial	N =192/ Large cancer hospital in Melbourne, Australia	Current prechemotherapy preparation is suboptimal, and not much research has studied how this affects patient distress regarding treatment-related concerns. A nurse-led prechemotherapy educational intervention shows promise to improve these concerns and physical/psychological outcomes	Limited sample size. The study was undertaken at a single specialist cancer center and studied a limited population	Level 1, Quality B

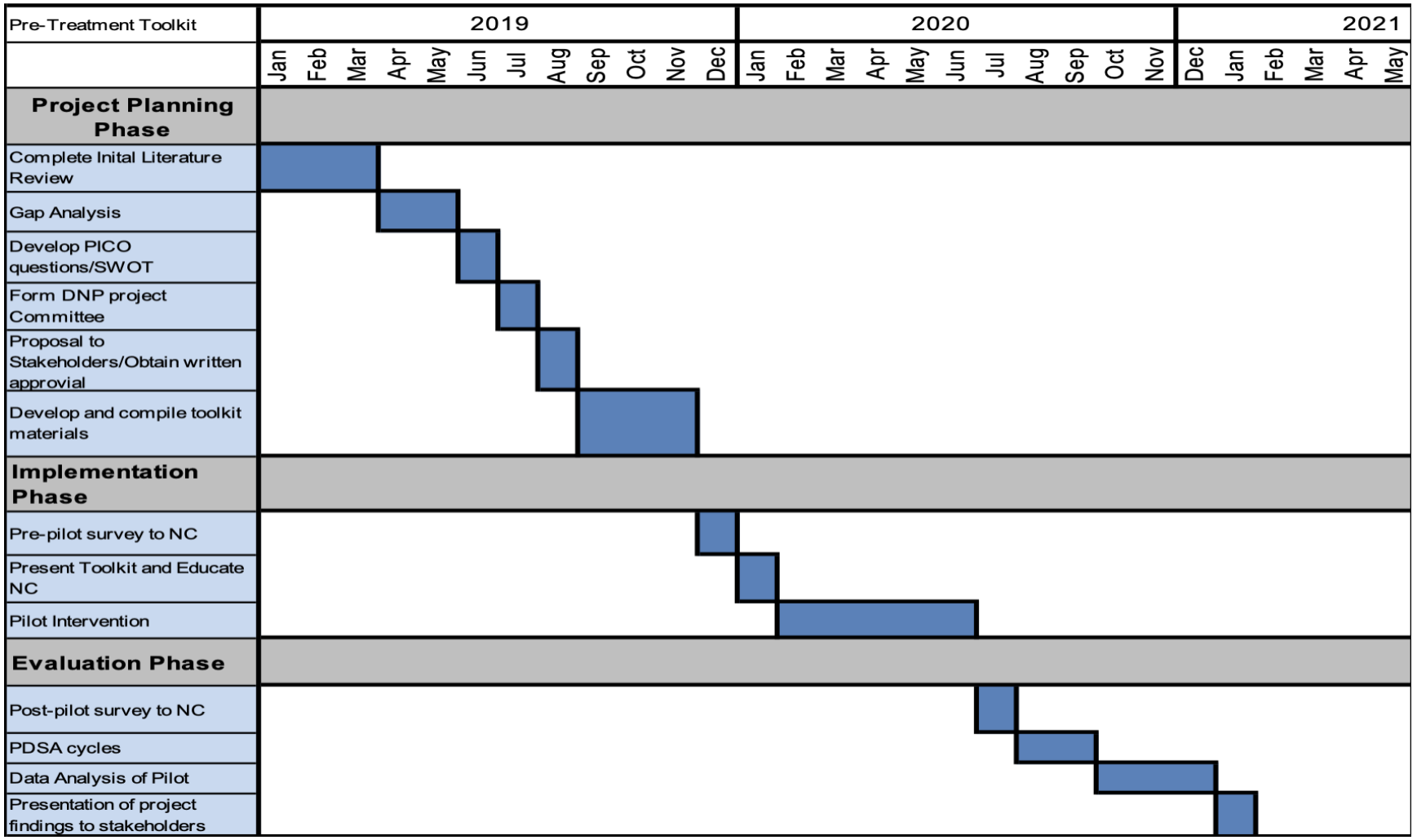
Dalby et al. (2013)	Process improvement project	N=53/ Prominent Cancer Institute in Boston, MA	Standardizing chemotherapy education improves the patient's understanding of their upcoming treatments using standardized checklists to provide a teaching framework. Calendars are also helpful and should be implemented into practice	The teaching session's timing was not standardized when the session was conducted from 2 weeks before the first treatment or the same day. This may have influenced the measured outcomes	Level V Quality B
Wagner et al. (2018)	Cluster randomized control trial	N=251/ Several oncology clinics within a large center in the Pacific Northwest	Nurse navigator support for patients with early cancer significantly improved the patient experience and reduced care problems but did not affect the quality of life	Limitations included the atypicality of the setting, lack of baseline data for the questions, random assignment of physicians rather than patients, and limited sample size	Level 1 Quality B
Munoz et al. (2018)	Retrospective study/Literature review	N= 60/ Large community medical center in Fresno, CA	The inclusion of an oncology nurse navigator results in a shorter time lapse between diagnosis and commencement of treatment	Multiple independent variables such as patient socioeconomic status, availability of resources, medical group, and existing comorbidities can influence outcomes. The inclusion of the multidisciplinary tumor board may have influenced the study results as well	Level V Quality B

Apor et al. (2017)	Comparative study through survey data	N=196/ A prominent academic institution in Boston, MA	The patient's understanding of treatment schedule, potential adverse effects, and antiemetic medication regimen showed significant increases after undergoing a teaching session by an oncology nurse before commencing the first treatment	The survey instrument was not previously validated. Information related to the patient's cancer staging was not utilized as some stages are not curable and palliative in intent to treat	Level V Quality B

Appendix D: Gap Analysis

Strategic Objective	**Current Status**	**Deficiency**	**Action Plan**
Identifying information clinic, NC deems most valuable to know to give the pre-treatment teaching session.	No feedback initiative has ever been completed to identify knowledge gaps among NC to identify education gaps related to independently conducting the pre-treatment educational visit.	Knowledge/comfort levels related to NC's conducting a pre-treatment educational visit vary by individuals as some nurses have some experience with this.	Communicate with relevant stakeholders to discuss and determine what information would be deemed valuable and included in the teaching toolkit.
Develop clinic-specific reference sheets to capture and identify pertinent information.	No initiative has ever been undertaken to develop specific, universal teaching materials for use in the clinic to teach patients who are starting chemotherapy treatments.	No specific reference sheets currently exist for utilization by the NC to conduct a teaching session. Some educational information exists related to APP teaching but is not consistent.	Collaborate with clinic stakeholders to develop evidence-based clinic-specific reference sheets to be utilized in the teaching toolkit.
Improve communication of availability of clinic toolkit resources. Assign responsibility of supportive personal to make sure the toolkit is compiled and readily available.	The majority of NC and support personnel are not aware of supplemental clinic recourses available to conduct a pre-teaching session.	Without specific, universal teaching materials, the NC is not consistently teaching the new chemotherapy treatment patients. This may lead to patients not receiving effective pre-treatment education.	Promote the use of the toolkit supplemental information availability and location of such information in daily clinic huddles.
Develop and implement a sustainability/responsibility plan for future resource management of toolkit recourses.	No sustainability/ responsibility plan exists for resource management currently.	Without the necessary toolkit information available, the NC will need to compile and print data. Knowledge needs to be up to date and modified as required.	NC and clinic leadership review and revise clinic-specific resources sheets annually to change and update as needed.

Appendix E: Gantt Chart



Appendix F: Work Breakdown Structure

Improving Nurse Led Chemotherapy Teaching

Define	Plan	Launch	Manage	Closeout
Gap Analysis EPB Practice change	Develop deliverables and milestones	Breakdown of project workflow	PDSA's completed and modify toolkit or nurse education as necessary	Outcomes evaluation and present data to stakeholders
Identify PICO question	Discuss with stakeholders and decide which info to use	Administer pre-intervention survey to nurses	Administer post-implementation survey to nurses	Sustainability plan: Assign admin to ensure toolkits are available
	Compile toolkit information	Introduce and educate nurses on toolkit through 1:1 and group meetings as needed		Final project writeup
Cost analysis, and plan proposal	Formulate Likert scale survey questions for pre/post test	Sit in on real time chemotherapy teaching session with nurses. Obtain and give feed-back		DNP presentation

Appendix G: Responsibility Matrix

Name	Role	Responsibility
DNP Student	Project manager/facilitator	Facilitate development, implementation, rollout, progression, data analysis, and closeout
Unit leadership	Promoter	Grant initial approval for the plan. Provide feedback for process flow issues and guidance throughout
Clinic-based Nurse Coordinators (NC's)	Facilitator and Collaborators	Tool development, rollout, and project progression at the unit level
Unit Clinical Administrative/Medical Assistants (CAA's)	Facilitator and Distributor	Tool disbursement

Appendix H: Communication Matrix

Information	Target Audience	When	Method of Communication	Responsible
Project Proposal	Nurse Manager and lead APP	8/2019	In-person meeting	DNP student
Project overview& tool development plan	Clinic nurses, APP's MD's, administrators, and medical assistants	9/2019-12/2019	In-person presentation at monthly CCP meeting	DNP student
Project overview & rollout plan	Clinic nurses, administrators, and medical assistants	7/2019	In-person during daily AM huddles for two weeks before rollout	DNP student
Pre-implementation survey	Clinic nurses, APP's	12/2019	Email to target audience and survey to be placed in each nurse's mailbox	DNP student
Project pilot start, progression, up dates & close-out	All key stakeholders	1/2020-6/2020	In-person monthly CCP meeting, a weekly check-in with unit leadership	DNP student
Post-implementation survey	Clinic nurses, APP's	7/2020	Email to target audience and survey to be placed in each nurse's mailbox	DNP student
Communication of project results & final presentation	All key stakeholders	12/2021	CCP monthly meeting	DNP student

Appendix I: SWOT Analysis

Strengths	Weaknesses
❖ Strong executive leadership and management level support ❖ Large academic facility utilizing evidence-based protocols and interventions ❖ Nurse advocacy is inherent to the role of the nurse coordinator ❖ Multiple studies in the literature related to process improvement changes of this type	❖ Limited research-related (cohort studies, RCTs, evidence summaries) articles as the subject matter did not yield literature of this type ❖ Lack of administrative support personnel to offload non-clinical workflow ❖ Poor rapport with some providers between the nurse coordinator and MD/APP ❖ Decreased engagement due to high acuity/stress within the clinic ❖ Low staff morale/high turnover
Opportunities	**Threats**
❖ Promote the role of nurse coordinator as an integral asset to the team-based care that Stanford Healthcare gives its patients. ❖ This comprehensive individualized education may also have an impact on patient satisfaction scores and will benefit the organization.	❖ Decreasing the role of NC in the oncology clinics at Stanford Healthcare due to monetary restraints ❖ Possibility of leadership modifying the team-based role the NC currently plays into more of a triage nurse who is less involved in point of care patient teaching

Appendix J: Budget

Expenses	Participants	Number of hours	Unit cost (US $) per hour	Total Cost (US $)
Estimated clinic meeting time-salaries for clinic staff				
-Nurse Executive	1	1	$ 114	$ 114
-Nurse Coordinator	13	0.5	$ 94	$. 611
Total expense for staff training				**$ 725**
Estimated cost for QI Project Manager				
-Facilitator		6	$ 94	$ 564
-Preparation of resources		200	$ 94	$ 18,800
-Data collection and analysis		30	$ 94	$ 2,820
Cost for facilitating project				**$ 22,184**
Cost for training/product supplies (including printer paper copies, folder, ink toner and communication board)				$ 330
Total estimated project costs				**$ 23,239**

Appendix K: Expected Revenue

Clinic Provider Role	Cost charged per provider	Additional patients seen	Estimated increase in revenue (per day) *	Estimated Gross Annual Increase in Revenue **
Advance Practice Provider (NP or PA)	$ 1,200	1	$ 1,200	$ 288,000
Nurse Coordinator (NC) education visit	$ 25	1	$. 25	$. 6,000
Total Estimated Revenue/year				$ 294,000

*Cost per provider for outpatient visit for evaluation and treatment of a new patient with an RVU of 5.
**Estimated increase in annual revenue of seeing additional patients (Days per year (240 days/year)).

Appendix L: Data Collection Tools

Nurse-led *Pre-Intervention Education Experience Survey*

1. I know what is expected of me in conducting an independent nurse pre-treatment patient educational visit.

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

2. I know what specific information should be included in the nurse pre-treatment patient educational visit.

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

3. I understand the process related to how a patient is scheduled for the nurse pre-treatment patient educational visit.

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

4. I understand the process of how to document the information from the nurse pre-treatment patient educational visit in EPIC.

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

How do you feel the education and use of the nurse-led pre-treatment patient education will likely change your practice?

How do you feel your contribution as a team member in the nurse coordinator role is highlighted or not highlighted by having the nurse coordinator conduct the nurse-led pre-treatment education clinic visit?

Nurse-led *Post-Intervention Education Experience Survey*

1. I know what is expected of me in conducting an independent nurse pre-treatment patient educational visit.

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

2. I know what specific information should be included in the nurse pre-treatment patient educational visit.

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

3. I understand the process related to how a patient is scheduled for the nurse pre-treatment patient educational visit.

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

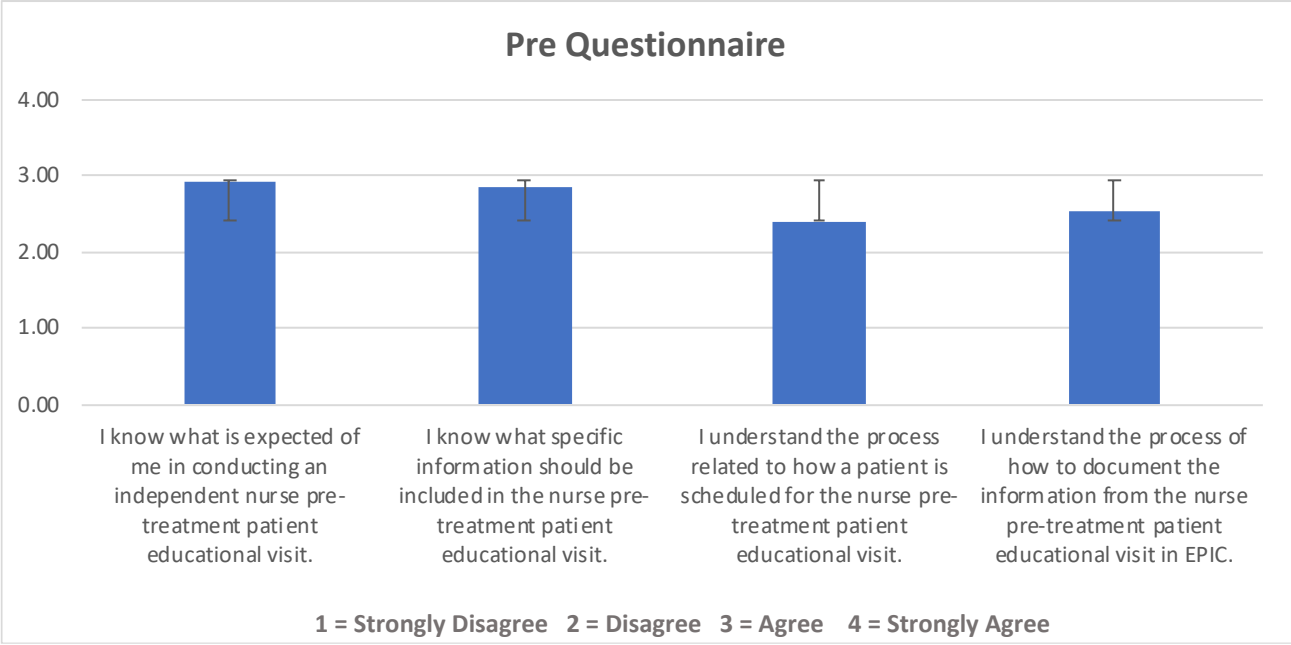
4. I understand the process of how to document the information from the nurse pre-treatment patient educational visit in EPIC.

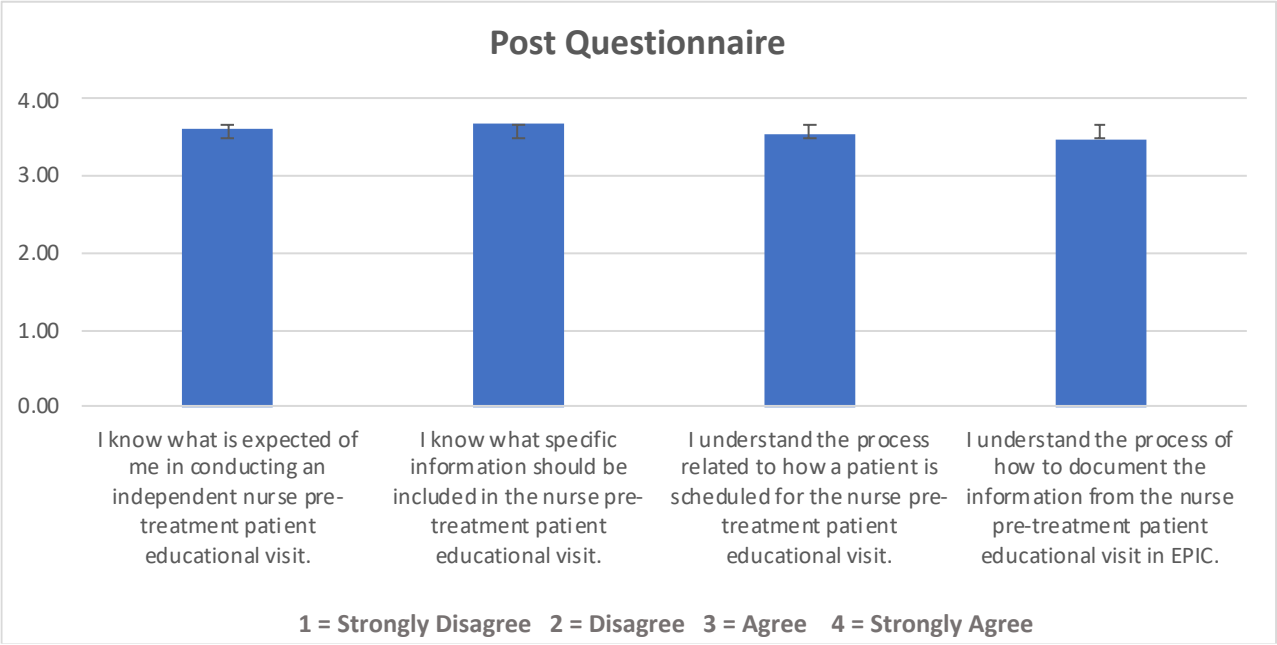
☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

How do you feel the education and use of the nurse-led pre-treatment patient education will likely change your practice?

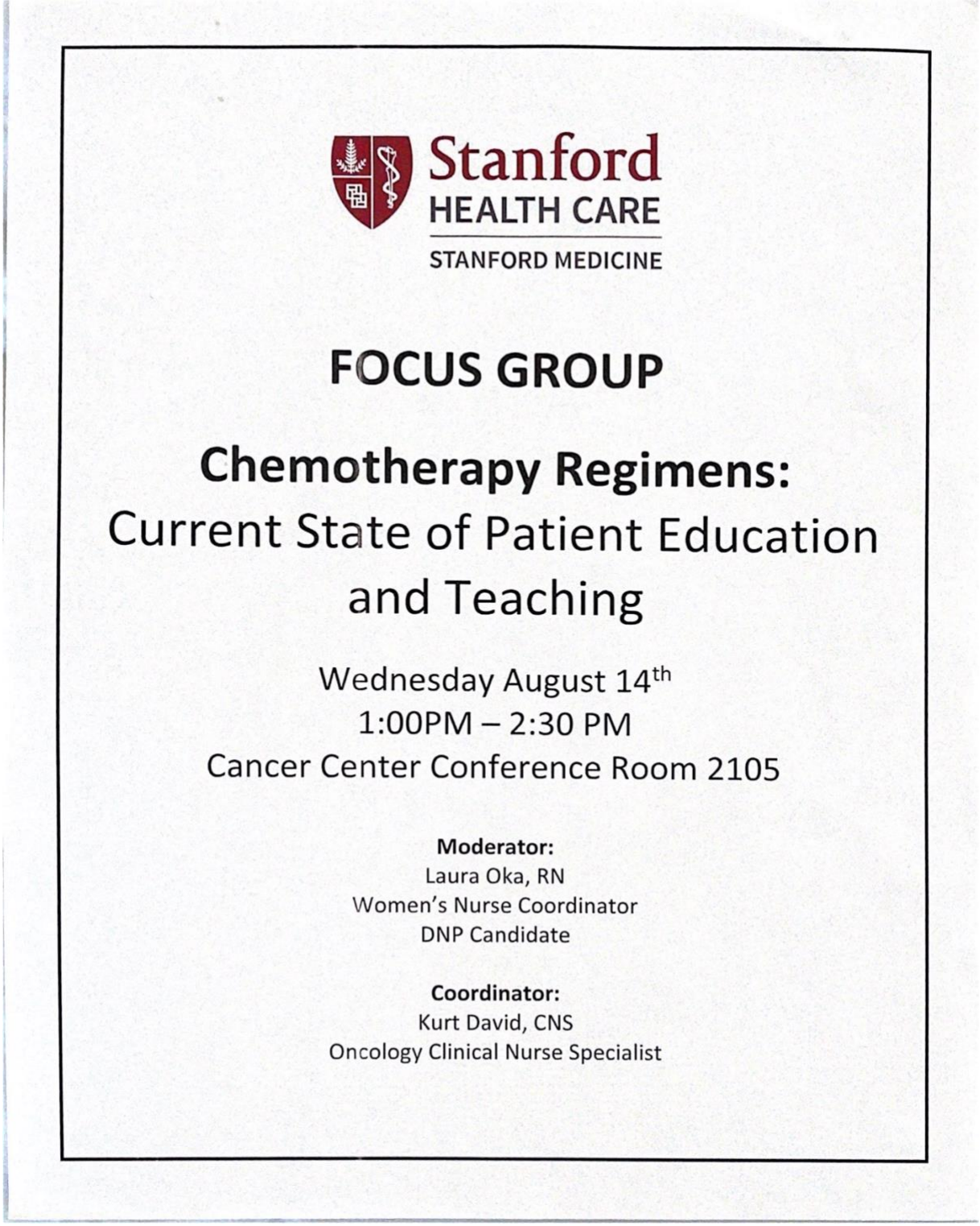
How do you feel your contribution as a team member in the nurse coordinator role is highlighted or not highlighted by having the nurse coordinator conduct the nurse-led pre-treatment education clinic visit?

Appendix M: Pre-and Post-Survey Charts





Appendix N: Focus Group Information



Stanford
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Nurse Coordinator Focus Group

Chemotherapy Regimens:
Current State of Patient Education and Teaching
August 14th, 2019

Roster (N=19)

Laura Oka	NC	SWCC
Kurt David	CNS	Cancer Centers
Aileen	NC	Breast
Theresa	NC	Women's
Nicole	NC	Thoracic
Megan	NC	Thoracic
Megan Gershon	NC	Neuro
Jyoti	NC	Neuro
Art	NC	GI
Victoria Wertz	APCM	ITA Heme/BMT
Flora	NPDS	Fgr
Anne	Educator	ITA Med/Onc
Mary		
Ellen Moore	RN	CCSB ITA
Charm		
Alina Wright	NC	CCSB
Cat Terrell	Director	CCSB
Chris Tucker	RN	ITA Med/Onc
Maricris	APP	BMT

Focus Group Notes

In Neuro Onc, patients may have multiple visits in one day. This makes it hard for the patient to retain the information, leading to compliance issues. Often patients need a return to clinic visit for chemotherapy teaching only, with an APP possibly an MD. Patients have a scheduled monthly oral chemotherapy visit, this includes a side effect review, refills, review of life events. Common issues with the education include space, structural or operational issues.

In SWCC, often ad hoc office space is used for chemotherapy teaching. Breast Onc currently uses a folder or toolkit.

In ITA, RN's perform reinforcement of chemo education with patient during chemotherapy administration. They note that some clinic services use printed materials and others don't. There is an

Appendix O: Pre-Treatment Nurse Checklist

Nurse Coordinator Pre-Treatment Educational Visit Checklist

☐ **Intro:**

- Introduce yourself and your role, including working together as a team (MD, APP, Fellow, Resident, CAA, and MA).

☐ **Need for Systemic treatment:**

- Cancer treatments may consist of surgery to remove the tumor tissue, systemic therapies such as IV Chemotherapy treatments, Radiation, and oral anti-estrogen inhibitors. These treatments are recommended to give you the best chance of killing any cancer cells locally or those potentially circulating in your body

☐ **How does Chemotherapy work?**

- Typically, cells live, grow and die predictably. Cancer occurs when specific cells in the body keep dividing and forming more cells without the ability to stop this process. Chemotherapy protocols involve destroying cancer cells by keeping the cells from further multiplying. Unfortunately, in the process of undergoing chemotherapy protocols, healthy cells can also be affected, especially those that naturally should divide quickly.

- Chemotherapy drugs that kill cancer cells only when they are dividing are called cell-cycle specific. Chemotherapy drugs that kill cancer cells when they are at rest are called cell-cycle non-specific. The scheduling of chemotherapy is set based on the type of cells, the rate at which they divide, and the time at which a given drug is likely to be effective. Therefore, chemotherapy is typically given in cycles.

☐ **Why you may experience common side effects:**

- Chemotherapy is most effective at killing cells that are rapidly dividing. Unfortunately, chemotherapy does not know the difference between cancer cells and normal cells. The "normal" cells will grow back and be healthy, but, in the meantime, side effects occur. The "normal" cells most affected by chemotherapy are blood cells, cells in the mouth, stomach, bowel, and hair follicles, resulting in low blood counts, mouth sores, nausea, diarrhea, and/or hair loss. Different drugs may affect other parts of the body. Fortunately, we have very effective medications to help manage these unpleasant side effects.

☐ **Specific Treatment Plan:**

Your Doctor has chosen specific chemotherapy drugs based on

- Research: specific protocols based on cancer type, stage, and other specifics.
- Response rates: established through years of research and is how a type or stage of cancer will respond to a particular drug.
- The health of the patient; due to the toxicities of chemotherapy, risk vs. benefit must be taken into consideration when deciding treatments.

- (Go over specific common agents' side effects related to the patient's chemotherapy. **Print out the chemotherapy sheets from Chemocare.com to include in the toolkit**)

☐ **Adjuvant vs Neoadjuvant treatment:**

- Adjuvant treatments consist of having surgery followed by chemotherapy and then radiation if indicated.
- Neo-adjuvant consists of having chemotherapy up-front to help shrink the tumor's size and assess response to treatment. Surgery is then completed, followed by radiation if indicated.

☐ **Three main agents:**
-ACT=Adriamycin (Doxorubicin) & Cytoxan (Cyclophosphamide), which will be given Q3 weeks X 4 cycles
Followed by:
-Taxol (Paclitaxel) given weekly X 12 cycles or DD Q 3 weeks X 4 cycles

-TC= Taxotere (Docetaxel) and Cytoxan (Cyclophosphamide), which will be given every three weeks X 4-6 cycles

-TCHP= Taxotere (Docetaxel), Carboplatin (Paraplatin), Herceptin (Trastuzumab), and Perjeta (Pertuzumab) given every three weeks X 4-6 cycles with Herceptin and (possibly Perjeta) to complete one year of treatment.

☐ **Nadar Affects Blood Cell and Platelet Counts:**

- When chemotherapy is given, it not only affects the rapidly dividing cancer cell, but it also involves some of the normal cells of the body. These effects mainly occur on normal cells that divide quickly, such as the hair, the lining of the mouth, the cells lining the intestinal tract, and the blood cells (white and red blood cells and platelets).

- The nadir time is usually about 7-10 days after treatment, although this may vary depending on the drugs given. During the nadir time, the concern is that the body's first line of defense against infection, white blood cells (WBC), is low, leaving a person more susceptible to disease. The next dose of chemotherapy is given only after a person's blood counts have left the nadir and recovered to a safe level.

- Neulasta or (Pegfilgrastim) is a colony-stimulating factor, meaning it is given 24 hours after receiving chemotherapy to help stimulate the growth of "health" WBC in the bone marrow. We now have a device called Onpro, an on-body injector placed on your skin, and self-inject a preprogrammed amount of medication while you are at home. Your infusion nurse will show you a video and explain how it works at your first treatment.

- This medication sometimes causes body ache and bone pain. The pain may be alleviated by taking **Claritin** daily in the morning of days 2-6. You may also use **Tylenol/Motrin** as needed for pain.

☐ **Medi Port, Echo, labs, home meds:**

- An implanted port is sometimes recommended before starting specific chemotherapy treatments due to potential injection site reactions and treatments' longevity.

- An Echocardiogram (ECHO) is an ultrasound test of your heart to evaluate how well the left ventricle functions. It is usually recommended for Her2 directed treatments such as Herceptin and Perjeta, baseline and every three months throughout treatment. It is also recommended to have a baseline ECHO before starting Doxorubicin.

- We will have you obtain labs before each treatment to assess how your body reacts to the chemotherapy. Walk walk-in labs do not require an appointment, and our infusion schedulers will schedule port labs.

- At-home medications will be sent to your pharmacy of choice, and we will go over the recommended schedule of how to take the best to prevent symptoms of nausea/vomiting after each treatment. Please make sure you pick them up before starting treatment.

☐ **What happens in the infusion center?**

- Your team of providers at the infusion center are highly trained oncology nurses and are available to answer many of your questions. They are also trained to help manage chemotherapy reactions/allergies if they occur.

- It is advised to wear comfortable clothes to the treatment. Eat a light breakfast and bring some snacks/lunch with you as you may be there for many hours. You may also bring your computer, iPad, earphones, or a good book with you. The staff will do their best to make sure you are comfortable and try to decrease any distractions.

- The sequence of treatments will be IV fluids and pre-meds followed by chemotherapy and then more hydration.

☐ **Side Effects: Expected vs. Serious ** Discuss with your care team if you have these symptoms.**

- Fatigue**
- Body ache
- Muscle ache
- Lack of appetite**
- Nausea
- Mouth Sores**
- Constipation/Diarrhea
- Decreased blood counts (anemia/depressed immune system/risk of bleeding)
- Hair loss
- Allergic symptoms (itching/hives/swelling are the most common) **
- Numbness/tingling in the hands and feet (Neuropathy)**
- Chest pain/shortness of breath/lower extremity swelling**

☐ **Nausea/Vomiting:**

The best way to treat nausea/vomiting is to prevent it! These are the recommended medications to take at home after your treatment (see recommended at-home symptom management medication sheet)

- **Zofran**
- **Compazine**
- **Ativan**

- **Decadron if receiving Taxotere**: Some treatment medications such as **Docetaxel** require you to take three days of a steroid called Decadron at each cycle's start. The use of this steroid is to decrease the side effect of a treatment reaction and have the added benefit of helping reduce nausea related side effects

- *If you are taking the at-home medications as recommended and are still having N/V or are unable to keep foods or fluids down, please notify us as you may need to come in to get hydration or IV anti-nausea medications in the ITA.

☐ **Constipation:**

Some anti-nausea medication, as well as chemotherapy, may cause constipation. You may find it helpful to use a mild laxative such as OTC Colace to help prevent this.

- Colace

- Senokot
- MiraLAX
- Smooth Move Tea

Other more natural options that may work for you:

- Drink 2-3 litters of fluid/day
- Try to get moderate exercise 20-30 minutes/day
- Limit alcohol to 1 glass/day
- Try ground fresh flax seeds over your cereal.
- Fresh celery sticks
- Prune juice or pureed prune baby food

☐ **Diarrhea**

You may find that you alternate between constipation and diarrhea during chemotherapy. If you have diarrhea:

- BRAT diet: bananas/rice/apple sauce/ toast
- Increase fluid intake
- OTC Imodium as directed

☐ **Mouth Care:**

If you have mild soreness or mouth redness:

- Brush with a soft toothbrush 4X/day
- Apply a lip moisturizer
- Avoid consuming scalding hot liquids
- Arrange to have a checkup with your dentist before starting treatments.

-1 Tablespoon of baking soda and 1 Tablespoon of salt in 2 pints of water. Swish and gargle 4 four times/day
-Avoid over the counter mouth rinses like Listerine or Scope as they have alcohol in them
-Biotin Mouthwash three times/day (to help prevent mouth sores)
-Stomatitis cocktail (prescription numbing mouthwash if you develop open mouth sores)

Low White Blood Cell Count or symptoms of infection/sickness

If you develop a temperature **>100.4, F or 38 C,** you must notify us promptly. Monday thru Friday, during regular hours, you may call us at **650-498-6004.** The call center will send us an urgent page to call you back and get more information. After hours, weekends, evenings, or holidays you need to call the **after-hours** line any time at **650-723-6661** to discuss with a triage RN or MD.

Fevers can be a sign of infection, and if your WBC is low, it is difficult for your body to fight infection. You may be asked to come in to get lab work done and may be asked to start taking antibiotics.

☐ **Miscellaneous Info:**

- Drink at least 2-3 liters of water/day **(8-10 glasses** or 2-3 quarts) every day, unless directed otherwise by your doctor. Fluid examples may be water, juice, sports drinks, broth, soup, popsicles, and jello
- Avoid eating raw fish
- Handwashing is the number one defense to fight off infection.

☐ **When should I call my healthcare team?**

- A fever of **100.5 F or greater**

Supportive Care program

- #650-725-9456
- www.cancer.net American Society of Clinical Oncology (ASC). This is an evidence-based website containing evidence-based information.

"The best cancer care starts with the best cancer information."

Appendix P: Pre-Planning Tool

Stanford HEALTH CARE
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Pre-Planning Tool

Patient_____ Physician_____ MR_____

Diagnosis_____

PLAN

Regimen_____ Cycles_____ Start Date_____

Surgery_____ Date_____

XRT_____ Date_____

SCANS

- ☐ CT CAP _____
- ☐ Bone Scan _____
- ☐ PET _____
- ☐ Outside Path review _____
- ☐ Outside Scan Review _____
- ☐ Oncotype _____

PRE-PLANNING

- ☐ Beacon Plan entered _____
  Authorization OK'd _____
- ☐ Port_____
- ☐ ECHO_____
- ☐ Labs_____
- ☐ Home Meds_____
- ☐ Pharmacy_____
- ☐ Chemo teach_____
- ☐ 1st Appointment Scheduled _____

Issues: _____

4/3/2020

Appendix Q: Chemo Fact Sheet

Stanford Women's Cancer Center
Breast Oncology Chemotherapy Fact Sheet

A Guide to Cancer Infusion Therapy

Your oncology team will review the schedule for your chemotherapy, depending on your treatment plan.
Schedules may change for many reasons. We ask that you be as flexible as possible with treatment days and times. Please notify the scheduler in advance of your preference in location and time *(we will do our best with your request, but unfortunately, we can't guarantee this will happen).* Unexpected events about your treatment and/or the treatments of other patients can often cause delays. *You may have less stress if you do not make other commitments on the day of your infusion appointment.*

Your chemotherapy will be given through an IV (intravenously). The treatment is provided in the ITA (Infusion Treatment Area), located at one of our 3 locations.

Stanford Cancer Center Infusion Treatment Locations

875 Blake Wilbur Drive 2nd Floor Palo Alto, CA 94304 Phone: 650-725-1860	450 Broadway Street Pavilion B35, 3rd Floor Redwood City, CA 94063 Phone: 650-724-6140	2589 Samaritan Drive 4th Floor San Jose, CA 95124 Phone: 408-426-4900

Tests before treatment

You may need some tests before starting your treatment. These help the doctors make sure you're well enough to have your treatment. They will usually include blood tests and maybe urine or heart tests. Sometimes, you may also need to have x-rays or scans before treatment starts. Before each treatment cycle, it is normal to have a blood test and see the doctor or nurse. This may be on the day of your treatment or a day or two before it. They will check your blood results and ask you how you have felt since your last treatment.

Along with the chemotherapy, you will be receiving fluids to hydrate you and medications to help prevent nausea and sometimes allergy symptoms (ex. itching). If your IV access is difficult or painful for you, ask us about a central venous port (a more permanent IV access placed under the skin to be used for blood draws and chemotherapy). The port can be removed at the end of your treatments.

Common Side Effects of Chemotherapy
** Discuss with your care team if you have these symptoms.

- Fatigue**
- Body ache
- Muscle ache
- Lack of appetite**
- Nausea
- Mouth sores
- Constipation/Diarrhea
- Decreased blood counts (anemia/depressed immune system/risk of bleeding)
- Hair loss
- Allergic symptoms (itching/hives/swelling are the most common) **
- Numbness/tingling in the hands and feet **
- Chest pain/Shortness of breath/lower extremity swelling**

Not all side effects are experienced by every patient. Every chemotherapy drug has a different set of side effects. Depending on your treatment plan, we will let you know which side effects to be concerned about most.

Below will review some techniques to manage the common symptoms

Nausea/Vomiting:
This symptom is usually well controlled with the proper medications. We rarely have patients who have vomiting after treatment. More commonly, patients will describe mild nausea or lack of appetite for a few days after treatment. The best way to treat nausea is to prevent it! We will give you medications during the chemotherapy and ask you to take some medicines at home to help prevent the onset of nausea. Below are the medications you should take with your treatment.
Start these medications as advised. Take them on a schedule as below during the hours you are awake. Sometimes these medications can need prior authorization from your insurance before you can get it- your pharmacy will let you know if you need this, and our team will help you get it authorized. Not all chemotherapy will require a nausea regimen. We will tell you what we recommend you take.

☐ Zofran (ondansetron) 8mg - Start the morning after your chemo infusion. Take one tablet every 8 hours for 2 to 3 days after treatment.

☐ Ativan (lorazepam) 1mg - Start the evening of your chemo infusion. Take one tablet at bedtime for 2 – 3 days starting the infusion day to help you sleep and prevent nausea/vomiting.

☐ Compazine (prochlorperazine) - 10mg Take one tablet every 6-8 hours as needed for nausea if Zofran is not effective.

If your chemotherapy is particularly more nauseating or we find that the above medications are not quite enough to control your nausea, we may add:

☐ Emend (aprepitant) 150mg IV. We can add this to your premedication through the IV.
☐ Aloxi IV 0.25mg/5ml – infused before chemotherapy.
☐ Decadron 4mg- take one tablet twice daily for two days after chemotherapy.
We can make other changes to help control nausea if needed, such as additional hydration in the Infusion Treatment Area (ITA).

Constipation
Chemotherapy, as well as the medications we use for pain or nausea, can cause constipation. We recommend that your start taking a mild laxative the day of chemotherapy to help prevent this. Please use one of the following:

Please mark the medications that are appropriate for your patient:

☐ Colace 100mg (docusate sodium) Take 1-2 tablets twice daily (stool softener)
☐ Senokot Take 1-2 tablets twice daily for constipation
☐ MiraLAX 17g Mix with water or juice and drink daily (this is a suitable medication for daily maintenance, it does not work well once you are constipated)
☐ Smooth move tea (gentle) for those who are more sensitive to laxatives. Available at Whole Foods or other natural grocers.

Other more natural options that may or may work for you:
- Drink 2-3 liters of fluid per day (especially if you take a fiber supplement or have a high-fiber diet)
- Try to get moderate exercise 20-30 minutes per day
- Limit alcohol to 1 glass per night
- Try ground fresh flax seeds over your cereal.
- Try fresh celery sticks
- Try prune juice or pureed prune baby food (still a great option after all these years)

Diarrhea
Some patients will alternate between constipation and diarrhea during the chemotherapy. If you have diarrhea:

☐ BRAT diet: bananas/rice/apple sauce/toast
☐ Drink plenty of fluids. Avoid sugary or processed foods that can exacerbate diarrhea.
☐ Imodium Over the counter, take as directed

Mouth Care
If you have mild soreness or mouth redness:
- Brush with a soft toothbrush 4x/day and floss daily
- Apply a lip moisturizer
- Avoid consuming scalding liquids
- Arrange to have a checkup with your dentist **before** starting treatment

☐ 1 Tablespoon of baking soda and one tablespoon of salt in two pints of water. Swish and gargle 4
times a day.
☐ Avoid over the counter mouth rinses like Listerine or Scope
☐ Biotin Mouthwash three times daily (to help prevent mouth sores)
☐ Stomatitis cocktail (prescription numbing mouthwash if you develop open mouth sores)

Allergic/Hypersensitivity Reactions
These reactions are more common with certain chemotherapy medications than others. They usually occur during the infusion. Symptoms include itching, flushing, hives, shortness of breath, chest tightness, and low blood pressure. The symptoms typically resolve with Benadryl and sometimes from steroid medication. Rarely are the reactions more severe.

If you have a mild reaction, we may ask you to take allergy medication before chemotherapy and possibly a low-dose steroid called Decadron.

Low White Blood Cell Count
Your white blood cells are your infection-fighting cells (immune system). You may be at risk for this, depending on the type of treatment you are receiving. The more chemotherapy you receive, the more at risk your bone marrow is for low white blood cell counts.
White cells typically go down to their lowest approximately 7-10 days after chemotherapy and then start to recover. This is called the Nadir.

If you ever have a fever at home **>100.5 F or 38 C,** you need to call our office during regular business hours at **650 498-6004** or after hours: Please call **650-723-6661**

Fevers can be a sign of infection, and if your white count is low, it is difficult for your body to fight infection. We will likely ask you to come in to have your blood counts checked, and you may need antibiotics.

If your blood counts are getting too low before each treatment, we may use a medication to help stimulate your bone marrow to make more white blood cells.

Neulasta (pegfilgrastim) 6mg subcutaneous ONE time the day after chemotherapy.
This is a LONG-ACTING form of Neupogen.
It is given once after chemotherapy.
We can give it to you in the ITA 24 hours after chemotherapy. You may also receive this medication in the form of a patch that self-injects 24 hours after chemotherapy called **Onpro**.
Your infusion nurse (chemotherapy nurse) will again go over how to manage the patch.
You should not receive chemotherapy again for at least 14 days after this injection.

This medication can cause body ache and bone pain (back/chest/long bones). <u>The pain can be alleviated by taking Claritin daily in the morning of days 2-6 each cycle. You may also use Tylenol/Motrin as needed for pain.</u>

Muscle and Joint aches
Muscle aches can be caused by chemotherapy. They typically start the day after treatment and can last for 2-3 days. Paclitaxel is one of the chemotherapy drugs we give that can cause this. You can take anti-inflammatory drugs such as Motrin/Ibuprofen or Tylenol to help with the pain. Warm packs/ warm baths/and massages are also good options. Not everyone will experience these symptoms, and for some, they may be very mild.

Miscellaneous info:

- Drink at least 2-3 liters (8-10 glasses or 2-3 quarts) every day unless directed otherwise by your doctor. Examples of fluids are water, juice, sports drinks, broth, popsicles, and jello.
- Avoid eating any raw fish, raw eggs, or raw meat. It is okay to eat fruits and vegetables. Make sure to wash them well.
- Hand washing is the number one defense to fight infection. Please be sure to wash your hands frequently.

When should I call my healthcare team?

- A fever of 100.5° Fahrenheit, or greater.
- Bleeding or unusual bruising.
- Burning and/or pain when urinating.
- Constipation (no bowel movement in 2-3 days).
- Diarrhea (loose, watery stools) - four or more watery stools in 24 hours.
- Nausea, vomiting, or if you cannot keep down any liquids.
- Your current medications do not control pain.
- Redness, pain, sores, or a white coating in your mouth.
- Shaking and chills.
- Unusual cough, sore throat, lung congestion, or shortness of breath.

You may also get additional instructions about when to call your healthcare team.

We are here to help support you and allow you to complete the treatment safely and as comfortably as possible. Please stay in close touch with us (**my health online** is an easy way to ask quick questions or let us know how you are doing) to help manage symptoms and do our best to maintain your quality of life through this journey.

Depending on our treatment plan and the type of work you do, some patients will continue to work on a part-time basis through treatment. If you choose to take time off, we can have our administrative coordinator contact you to help with forms and letters.

Important Phone Numbers
If you have a question or concern: Please call **650-498-6004**

- Leave a message with the phone operator, and you will receive a call back from our nurse coordinator the same day

- If your question is determined to be urgent, you will be transferred to a triage nurse who will contact the appropriate provider (MD/NP) to answer your concern

If you have a non-urgent question for your doctor or nurse practitioner:

- You may communicate with them over "My Health."
- "My Health" is a secure email system within Stanford that we can use to share important information from your health record with you
- Ask our staff how you can sign up for "My Health."
- Please be aware we do not monitor this portal on evenings, weekends, or holidays

If you are experiencing a **medical problem after hours: Please call 650-723-6661**

- If this is a life-threatening condition, call 911
- Do not send a my-health message during after-hours as we do not monitor this portal.
- Ask to speak with the breast oncology on-call staff
- Someone is always available to assist you
- Appointments: Please call **650-498-6004**
- For an appointment in the **ITA** (infusion treatment area)
- After your visit, if you need to schedule a **radiology** test: Please call **650-723-6855**
- If you need to obtain copies of **medical records**: Please call **650-723-5721**
- If you need to schedule an **ECHO** test for your heart: Please call **650-723-7406**

Cancer Supportive Care Program

Our supportive cancer care program offers:

- Educational classes and workshops such as lymphedema, chemotherapy, and radiation classes
- 1:1 exercise consultation with cancer care specialist offering various yoga, palates, Taiichi, dance, and exercise classes
- Mindfulness meditation
- Support groups
- Healing touch, wig band, skincare, and scarf tying class

Please call **650-725-9456** to get more information or go to the supportive care website: **https://standordhealthcare.org/for-patients-visitors/cancer-supportive-care-program-html**

www.Cancer.net for Doctor-Approved Patient Information from American Society of Clinical Oncology (ASCO)

"The best cancer care starts with the best cancer information."

Appendix R: At Home Medication Management

Patient Name: _____ M RN_____ Treatment_____

Recommended at home symptom management medications

Drug Name	Day Before Chemo	Day of Chemo	Day After Chemo	Day 2 after Chemo	Day 3 after Chemo	Miscellaneous Information
Zofran (Ondansetron) 8 mg by mouth every 8 hours **for Nausea** *			8 am 4pm 10pm	(take 2-3 times a day) 8 am 4 pm 10 pm	(take 2-3 times a day) 8 am 4 pm 10 pm	Side effects are: Headaches and constipation
Compazine (Prochlorperazine) 10mg by mouth every 6-8 hours **for Nausea** *			As needed every 6-8 hours	As needed every 6-8 hours	As needed every 6-8 hours	Side effects are sleepiness and twitching or anxious feeling
Ativan (Lorazepam) 1 mg by mouth at bedtime **for nausea and anxiety** *		At bedtime	At bedtime	At bedtime as needed	At bedtime as needed	Side effects are sleepiness and amnesia
Decadron (Dexamethasone) 4mg by mouth **to alleviate swelling, prevent nausea and vomiting**	2 tabs 2 times per day (Breakfast and Lunch) Take with food	2 tabs 2 times per day (Breakfast and Lunch) Take with food	2 tabs 2 times per day (Breakfast and Lunch) Take with food			Helps to prevent allergic reactions and may help to increase appetite. May cause insomnia

*You may continue to take as needed after Day 3 post treatment.

4/3/2020

Appendix S: Bay Area Wigs

Bay Area Wig & Hairpiece Source

This is a list of vendors who supply wigs and hairpieces recommended by patients. Stanford does not endorse any commercial enterprises

Face to Face hair salon (custom hair pieces and wigs)
157 W Portal Ave #1
San Francisco, CA 94127
415.566.2806

Hair replacement by Janet (custom hair pieces and wigs)
1371 Laurel St.
San Carlos, CA 84070
659.592.3691

Hansen Fontana Inc. (Hair wigs/cranial prosthesis. Fully custom made or predesign wigs)
536 Bryant Street
San Francisco, CA 94107
414.495.8888 or 800.495.8881

The Wig Source at John Muir women's health center (only in twice a month. Used and new wigs. Appt only)
1656 N. Calif Blvd.
Walnut Creek, CA 94596
925.947.5328

Marzel's Inc. (breast prosthesis, surgical bras, lymphedema, synthetic wig pieces)
5980 Stoneridge Dr. Suite 119
Pleasanton, CA 94588
925.227.1402

1220 Oakland Blvd.
Walnut Creek, CA 94596
925.939.2450

Paris Fashion Wigs (storefront wigs, no custom wigs)
568 S Murphy Ave
Sunnyvale, CA 94086
408.737.2504

House of Wigs (hair for every women)
238 Plaza Central
Los Altos, CA 94022
650-559-00073

American Cancer Society (some free and donated wigs)
1720 S Amphlett Blvd.
San Mateo, CA
650.578.9902

1715 S Bascom
Campbell, CA
408.879.1032

4/2/2020