

# Podium Abstracts

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## ADVANCED PRACTICE

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### DEVELOPMENT OF AN ADVANCED PRACTICE PROVIDER ANTINEOPLASTIC THERAPY ORDERING PROTOCOL

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At the University of California San Diego Moores Cancer Center, one of 70 NCI-designated Comprehensive Cancer Centers, oncology Advanced Practice Providers (APPs) work in partnership with medical oncologists to provide specialized care to patients and their families. Historically, our Antineoplastic Therapy Ordering Protocol has been limited in scope with restrictions on APP authorization of intravenous antineoplastic therapy. With the support of a multidisciplinary provider team, we developed a program including a standardized protocol, competency assessment and ongoing evaluation of APP authorization of intravenous antineoplastic therapy to ensure safe and efficient care delivery while expanding the scope of practice of APPs at Moores Cancer Center. The objective was to establish an APP Antineoplastic Therapy Ordering Protocol, which grants APPs the privilege to sign and authorize continuation orders for established intravenous antineoplastic therapies. The program outlines that APPs granted privileges can demonstrate knowledge of the specific antineoplastic treatments, perform pre-treatment evaluation for each patient for whom they are signing orders, and communicate with the medical oncologist for any dose modifications made to the treatment plan. To ensure safety, the protocol's foundation includes a competency assessment and annual re-credentialing through the Medical Staff Credentialing Office. Evaluation for competency includes a requirement that APPs have three years of oncology experience and/or Chemotherapy Biotherapy certification through the Oncology Nursing Society and must complete twenty antineoplastic therapy orders under direct supervision of a medical oncologist prior to privileging. Once privileged, APPs undergo annual review of twenty chart audits with their supervising medical oncologist for reassessment of competency which will be monitored by the institution's Medical Staff Credentialing Office. Our program is designed with the option to opt in and at 12 months, we anticipate that

at least 40% of APPs will be privileged according to the protocol. At that time, we will further evaluate the program for safety around APP ordering, physician satisfaction, and improved workflow for the clinic and infusion center. Based on collaborative work from a multidisciplinary team, Moores Cancer Center Oncology APPs will practice using an approved Antineoplastic Therapy Ordering Protocol. This protocol can be implemented in any oncology specialty care setting, allowing APPs to expand their scope of practice, supporting safe and efficient care delivery.

### BEAMING AND ACCELERATING A NEW FRONTIER: ONBOARDING A COHORT OF ADVANCED PRACTICE NURSES IN RADIATION ONCOLOGY

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Radiation Oncology NP's are the newest advance practice nurses to oncology practice. Due to the nature of its subspecialty, radiation oncology NP's have often been educated, on boarded and trained by either a radiation oncologist (MD) or medical oncology NP's or a radiation oncology NP already in practice. New NP's to Radiation Oncology especially those with no prior NP experience or no prior radiation oncology experience require education and training support to practice effectively with acutely ill oncology inpatients. Traditional orientation models featuring didactic instruction and clinical preceptors may be limited by increasingly limited specialty educational personnel, limited advance practice nurses in this area of specialty and financial constraints. The purpose of this project was to provide support for newly hired nurse practitioners in radiation oncology by experienced leadership using a variety of educational strategies. This project describes an alternate model for radiation oncology onboarding and orientation in multiple radiation oncology settings of an NCI-designated comprehensive cancer center. The nurse manager and director of nursing coordinated and implemented a six month orientation for six radiation oncology NP's. While all had some oncology staff nurse experience, only one had prior radiation-oncology NP experience. Adult learning theory and essential magnet components served as the structural framework for the NP orientation. Key elements of the orientation included: (1) Integrating didactic learning with supervised clinical training (2) Peer learning—case presentations (3) Application of evidence based practice interventions, and (4) Retreats

& Teambuilding Activities. This innovative orientation model for optimal onboarding of NP's created a variety of high-quality learning, peer mentorship and professional growth opportunities in oncology care. The program provides a promising way to support adult learning, NP skill development and professional integration in the care of oncology patients and their families. This program helped build and integrate a radiation oncology team ultimately promoting the role of the advance practice nurse in radiation oncology and their contributions to the coordination of care and the promotion of positive patient care outcomes. Future recommendations include expansion of the model to other service-lines in the medical center with advance practice nurses, designing strategies to evaluate cost effectiveness and gathering job satisfaction, quality outcomes and retention data over time.

#### **CLINICAL NURSE SPECIALISTS IMPROVING COMMUNICATION AND SAFETY OF ANTINEOPLASTIC ADMINISTRATION ON NON-ONCOLOGY UNITS THROUGHOUT A LARGE ACADEMIC HOSPITAL**

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In recent years, the number of antineoplastics has greatly increased and more patients are surviving cancer with the use of novel therapies. Oncology patients are frequently treated for other health issues in non-oncology inpatient settings, and need to continue their cancer treatments. The oncology Clinical Nurse Specialists (CNSs) at this Comprehensive Cancer Center provided antineoplastic support to non-oncology units to ensure safety standards are followed. They identified the safest administration location for the patient, which included transfer to the Cancer Center, administration in the outpatient infusion center, or the patient's current location. The CNS team liaise with the patient's nurse to provide education about the agent and safe handling practices, and to educate the patient and caregivers. In recent years, this CNS group was challenged by the

increasing number of cancer patients treated outside of the Cancer Center. The purpose of this project was to highlight the complex workflow and provide structure for communication necessary to safely administer antineoplastics. Requests were made using a group email which included multiple nurses and pharmacists, creating duplicative efforts to achieve the desired goal. This workflow created an imbalance in the workload. Realizing this, the CNSs and pharmacists coordinated to streamline the process. A schedule was created, designating one CNS and one pharmacist on call each day, with a specific algorithm to be followed. A consultation pager was created that requires the completion of specific fields, providing the information needed to fulfill the request. The algorithm for after-hours or emergent antineoplastic administration was implemented to prevent delays in administration. This workflow was widely disseminated throughout the Hospital. Data collected, identified areas for improvement. Since implementation in July 2018, the average indirect time the CNS group spends coordinating administration, has decreased from 51 minutes to 44 minutes per request. Pre-implementation, 49% of the requests were made same day despite the groups preference of at least 24 hours' notice to ensure coordination of care. Post-implementation, same day requests dropped to 12%. Assessment is ongoing. Future goals are to innovate this practice by utilizing the electronic medical record to more accurately identify where antineoplastic ordering occurs, to ensure patients receive timely and safe administration of their cancer treatment and that all staff are adequately trained.

#### **CHECKPOINT INHIBITOR INDUCED GUILLAIN-BARRE SYNDROME**

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The objective is to describe a case of checkpoint inhibitor induced Guillain-Barre Syndrome, as well as further implications of these popular therapies in practice. Checkpoint inhibitors are becoming more popular as primary or adjuvant treatment for a wide spectrum of cancers including lung, melanoma, renal, bladder, head and neck and colon cancers, as well as Hodgkin Lymphoma, Merkel Cell carcinoma; even more cancers are being considered through clinical trials. Checkpoint inhibitor side effect profiles can be wide; they cause immune system imbalances, which can lead to T-cell mediated autoimmune manifestations. Immune-Related Adverse Events (IRAEs) can occur in up to 90%

of patients receiving checkpoint inhibitors, depending on the specific targeted molecule. IRAEs can occur in virtually every organ system including but not limited to dermatologic, gastrointestinal, endocrine, hepatic, pulmonary, neurological, and renal. In a case description, a 60 yo female, currently being treated with atezolizumab, presents to the Emergency Department with complaints of progressive peripheral paresthesias. Her initial assessment was significant for decreased strength throughout her lower extremities and normal global deep tendon reflexes (DTRs). Sensation was reduced to light touch to above knees. Her work up included labs, lumbar puncture (LP), computed tomography (CT) of head, magnetic resonance imaging (MRI) of brain and spine. Neurology was consulted and it was felt that this could be myelitis. High dose steroids were initiated. The next day, the patient had loss of DTRs and MRI and LP results were consistent with Guillain-Barre Syndrome. She continued high dose steroids and was treated with a 5 day course of intravenous immunoglobulin (IVIG). Her symptoms gradually improved and she was discharged to a rehabilitation facility with a prolonged steroid taper. Checkpoint inhibitors can cause an exaggerated T-cell response, which in turn can cause autoimmune responses to multiple organ systems. These symptoms can present several months after completion of therapy. It is important for healthcare providers to be aware of these possible side effects in order to properly diagnose and treat patients.

### **AN INTERVENTIONAL FRAMEWORK TO PREVENT AND MITIGATE THE EFFECTS OF BURNOUT AND COMPASSION FATIGUE**

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Years of nursing research have provided compelling evidence of the pressing need for healthcare organizations to intervene to prevent and mitigate symptoms of burnout and compassion fatigue among oncology nurses. Burnout has been defined as a stress response to physical and mental demands of patient care. Compassion fatigue, which is closely associated with burnout, develops when a nurse absorbs the pain and suffering of patients and subsequently suffers from their distress. Oncology nurses who are continually exposed to the physical, mental and emotional suffering of their patients, are particularly vulnerable. At the James Cancer Hospital and Solove Research Institute in Columbus, Ohio, the phenomena of burnout and compassion fatigue have been addressed through

a complement of interventions provided by a team of APRNs. The wide variety of initiatives are based on four aims: (1) Develop and refine programming to support resiliency (2) Support nurses to identify ethical issues and obtain the resources necessary to resolve them (3) Identify and develop nurse competencies related to end of life care and (4) Enculturate a model of healthy interprofessional teamwork throughout the organization. Program outcomes are based on the number of programs provided, the number of individuals who have attended and anecdotal evidence. Although some programming initiatives have developed more specific metrics the APRN team continues to explore avenues for reliable outcome measurements.

### **AN ONCOLOGY NURSE LED OPIOID MITIGATION PROTOCOL**

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Opioids offer significant benefit to patients with pain when used as prescribed, yet cause immense harm when misused and abused. While cancer-related pain management often includes opioids, appropriate and safe prescribing must be at the forefront of practice for every prescriber. One serious risk of managing cancer related pain is the potential for abuse and misuse of opioids. Prescribers lack confidence about how to safely prescribe opioids, detect abuse or addiction, and discuss these issues with their patients. Prescribers require clinical strategies to screen and monitor for aberrant behavior among patients with cancer who receive chronic opioid therapy. The goal of this initiative was to implement evidence-based strategies across disciplines to mitigate risk to patients and families when prescribing opioids. Current evidence supports the need for assessing opioid risk in patients who require opioids to manage their cancer-related pain. The 2017 NCCN Guidelines for Adult Cancer Pain reports assessing patients for aberrant behavior associated with pain medications. An appraisal and synthesis of current literature revealed strategies to implement to screen and monitor patients who take controlled substances to relieve cancer-related pain. At a large outpatient supportive oncology care clinic, prescribers did not follow a standardized protocol when prescribing chronic opioid therapy. A task force reviewed the strategies for feasibility and priority prior to implementation. A multidisciplinary supportive oncology care team created a standardized protocol for implementation at each patient encounter when chronic opioid therapy was prescribed. The protocol consisted four main categories including, universal risk

stratification, patient education and treatment agreement, screening and monitoring, and high-risk safety planning. Judicious clinical practice based on best evidence within the oncology clinical settings is critical to combat the opioid epidemic. The implementation and sustainability of a strategic protocol for opioid mitigation requires collaboration from all disciplines who care for the oncology population.

### **THE EFFECTIVENESS OF CASE MANAGEMENT MODEL ON QUALITY OF LIFE IN PATIENTS WITH BREAST CANCER CHEMOTHERAPY**

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In order to improve the quality of treatment and care for cancer patients, the case management model is gradually applied to the clinical practice of cancer patients. At present, there is less evidence of high quality research on the tumor case management model in China. This study aimed to investigate the impact of case management models on the quality of life of breast cancer patients. This study is a kind of experimental research, the study of the construction and clinical application of the design of the tumor case management model by the expert group. 86 chemotherapy patients with breast cancer who were selected for routine medical care in a cancer hospital in Guangzhou were selected as the control group. 80 chemotherapy patients with breast cancer who underwent case management were selected as the experimental group. The main outcome of this study was the quality of life of patients. This study used a self-designed general condition questionnaire to collect general information from patients on initial admission, and the EORTC QLQ-C30 questionnaire were used to measure the quality of life of patients in 4 time nodes. The results showed that the general situation data of the two groups of patients ( $P>0.05$ ), the initial quality of life baseline score ( $P>0.05$ ). The overall survival quality grouping effect of the two groups ( $F=39.046$ ,  $P<0.05$ ), time effect ( $F=62.318$ ,  $P<0.05$ ), functional section grouping effect ( $F=87.562$ ,  $P<0.05$ ), time effect ( $F=49.885$ ,  $P<0.05$ ), the experimental group score were higher than the control group, the symptom section grouping effect ( $F=76.128$ ,  $P<0.05$ ), the time effect ( $F=53.617$ ,  $P<0.05$ ), the control group score was higher than the experimental group. The quality of life of patients were affected by time, the score were higher on initial admission, and the most obviously decrease was in the initial chemotherapy

and then gradually increase. The case management model could improve the quality of life of patients with breast cancer chemotherapy.

### **THE PROCESS OF ONCOLOGY NURSE PRACTITIONER PATIENT NAVIGATION: A GROUNDED THEORY APPROACH, THE NAVIGATION PROCESS**

**Frances Johnson, PhD, Texas Woman's University, Houston, TX**

Nurse practitioner (NP) navigation, in general, has been shown to achieve cost effective quality care, while saving millions of dollars. Research is evolving which has shown that oncology nurse practitioner navigators' improve clinical outcomes. For purposes of this study, oncology NP (ONP) navigators are nurse practitioners with a certification in oncology who utilize navigation processes to care for cancer patients along any aspect of the cancer care continuum. Navigation process is defined as a series of actions or steps taken in order to achieve a particular end. Development of process and outcome measures is critically important in that the development of these measures is necessary for navigator program evaluation. The purpose of the study was to answer the question: What processes do oncology NP navigators use in caring for cancer patients? Twenty ONP navigators were interviewed though the use of a semi-structured interview utilizing grounded theory methodology. This resulted in a well-defined set of concepts and theoretical framework for the process of ONP navigation which lays the groundwork for program evaluation and role delineation. Qualitative research was used for this study design, utilizing grounded theory, which has a well established framework for conducting research. It is a recommended approach for unveiling organizational dynamics. Though on the lower end of the hierarchy of evidenced based practice, it is useful, as in this case, for laying the groundwork for more rigorous study designs. The study was significant in that it depicted navigation concepts that can be operationalized in future research. These concepts can be used to generate navigation theories, which in their most broadest sense can be utilized to strategically plan, evaluate, and refine evidenced based programs, that deliver timely quality care for our cancer patients. This study is innovative in that it lays the groundwork for a theory of oncology nurse practitioner patient navigation. The presentation will discuss ideas for future theory development including testing of hypotheses incorporating the navigation concepts, tool development, as well as statistical analysis.



## OPTIMIZING ANTIEMETIC MANAGEMENT OF CHEMOTHERAPY INDUCED NAUSEA AND VOMITING

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Chemotherapy induced nausea and vomiting (CINV) ranks as one of the most noxious side effects of chemotherapy treatments for patients. Inadequate antiemetic management can lead to decreased quality of life, sub-optimal nutrition, and poor medication compliance. A sound knowledge base of antiemetic mechanisms of action, options and efficacy in creating an individualized approach to management of CINV are essential tools for APNs who manage patients undergoing chemotherapy, whether a child or an adult. This session will review the pathophysiology of CINV and the pharmacology of antiemetics by classes along with antiemetic contraindications with various chemotherapy agents. We will also discuss the creation of an institution specific CINV pathway by a multidisciplinary team to increase compliance with antiemetic guidelines and improve control of CINV for patients. With the addition of multiple 5HT<sub>3</sub>-antagonists to the institution formulary for outpatient and inpatient use, a CINV pathway was created to help guide prescribing for the levels of emetogenicity associated with chemotherapy. The pathway guides initial prescribing and makes suggestions for patients who do not experience optimal CINV control. The electronic medical record antiemetic drug files were built to allow evaluation of compliance with the pathway. The antiemetic pathway was approved by the institutional Pharmacy and Therapeutics Committee prior to use. A post-pathway evaluation is ongoing to determine prescribing compliance with the pathway and change in control of CINV for patients. APNs have a critical role in management of CINV with the opportunity to help improve quality of life for oncology patients. Understanding CINV and antiemetic medications is critical to good patient management. Creation of an antiemetic pathway by a multidisciplinary team allows for guidance for CINV to improve control in patients and consistency in management on an individualized level.

## APPLICATION AND EFFECT OF PERIPHERALLY INSERTED CENTRAL CATHETER VIDEO ASSIST INFORMED CONSENT AND PATIENT EDUCATION IN A CANCER CENTER—A RANDOMIZED, CONTROLLED TRIAL

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To insert a Peripherally inserted central catheter (PICC) for cancer patients, Informed consent about the PICC line insertion procedure and patients education were necessary. The traditional face to face talking way take up very big part of nurses' working time, so we try to find new way to improve nurse's working effect, and improve patients' and nurses' degree of satisfaction. The purpose of this study was to make two videos (PICC line patient education and informed consent) in a central venous catheter outpatient center, and compare the effects of patient education and informed consent by video assist with traditional face to face talking. For first part, we use contents analysis and Delphi method to establish the contents of the video, and make the videos. For second part, One hundred and forty patients were recruited to participate in a randomized, controlled trial in Guangzhou, China. Seventy patients were assigned to the experimental group (video assist patient education and informed consent), and 70 were assigned to the control group (traditional face-to-face talking). General information, the patients' awareness rate of PICC related knowledge (determined via a questionnaire), nurse's working time used for informed consent and patient education (recorded after the procedure), patients' and nurse's degree of satisfaction with the procedure were collected to compare the effects of the two methods. T-test and chi-square test were used to analyze the data;  $P < 0.05$  was accepted as statistically significant. Ninety-eight (137) of the 140 PICCs were successfully inserted, 8 of the 137 PICCs were excluded. We analysis the 129 PICCs (66 in the experimental group and 63 in the control group). Compared with the control group, the experimental group reduced the nurses' working time for informed consent (1.0min vs. 6.87min;  $p < 0.001$ ), and the time for patient education (1.1min vs. 5.11min;  $p < 0.001$ ), nurses' satisfaction for the procedure was significant higher ( $p < 0.05$ ). The score of awareness rate of PICC related knowledge has no significant difference between the two groups (8.97 vs. 9.10,  $p > 0.05$ ), patients' satisfaction for the procedure has no difference between the two groups ( $p > 0.05$ ). Using video assist informed consent and patient education in cancer center can save nurses' working time and improve nurses' satisfaction, while the effect of education is the same for patients, thus should be widely used.

## EDUCATING ONCOLOGY ADVANCED PRACTICE REGISTERED NURSES IN PRIMARY PALLIATIVE CARE

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Oncology advanced practice registered nurses (OAPRNs) provide compassionate, evidence-based care to patients with cancer and their families every day, from the time of diagnosis until death. It is estimated that 609,640 people (1,670/day) with cancer will die in 2018, while 15.5 million cancer survivors will need follow-up care. By 2020, cancer is projected to overtake cardiovascular disease as the leading cause of death. Nearly half (47%) of hospital and academic medical centers report vacancies for medical oncologists. As these statistics increase, OAPRNs will need to be educated in primary palliative care in order to meet these complex demands. They will need to develop excellent communication skills to assist patients, families, and the interdisciplinary team to outline goals of care, to manage pain and symptoms, and to lead systems of care in promoting palliative care for all cancer patients at the time of diagnosis, as endorsed by both the Oncology Nursing Society (ONS) and the American Society of Clinical Oncology (ASCO). The purpose of this abstract is to provide an overview of the End-of-Life Nursing Education Consortium (ELNEC) OAPRN project, funded by the National Cancer Institute (NCI). This project educates OAPRNs in primary palliative care so they will be equipped to provide multifaceted cancer care. To date, over 150 OAPRNs have attended 2 of the 5 national workshops, representing 38 states + Washington, DC. The participants are competitively selected from NCI designated and community cancer centers. All participants are followed at 6 & 12 months post-course regarding challenges and opportunities in developing/instituting primary palliative care in their oncology setting. The post-course evaluations rating [on a scale of 1=low to 5=high] showcase the materials and resources were applicable to their practice (4.94) and information was stimulating and thought-provoking regarding palliative care issues (4.95). This presentation will report on the first cohort 6 month post-course outcomes, which will reflect on the challenges and opportunities in implementing skills as primary palliative care providers within their institutions. This presentation will also report on monthly webinars that reinforce content and enable the OAPRNs to share experiences in implementing

primary palliative care, in order to foster professional networking and to promote better care.

## DISEASE SPECIFIC COMPETENCY BASED ORIENTATIONS FOR THE ONCOLOGY ADVANCED PRACTICE PROVIDER (APP)

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CBO plans are a vital component in the onboarding and mentorship of new/seasoned APP hires. A CBO is an orientation program that focuses on a new APP's ability to actually perform the expectations of his/her role in a disease team/setting. It differs from a traditional model in which the focus is on the cognitive knowledge necessary for the role. In 2013, a generic APP CBO plan was developed by the Advanced Practice Nurse (APN) Council at Yale New Haven. In 2018, Smilow Cancer Hospital @ Yale New Haven developed disease specific CBO plans. The purpose of a CBO is to determine the essential functions of the job and what knowledge, skills, and abilities are required for APPs to be successful, assess their current skill set, and determine what is preferred versus what is required in order to meet their new roles and responsibilities. The generic APP CBO focused on the onboarding components and the five pillars of competency, which included professionalism, systems based practice, patient care/procedures, medical knowledge, and practice based learning and improvement. The APPs within each disease team developed competencies specific to their specialty, which included but not limited to chemotherapy prescribing and procedures. After each disease team completed their CBO, it is reviewed for accuracy and completeness. As new hires start, the CBO is reviewed and implemented. The evaluation of the CBO process will assist in possible restructuring and modification of the current orientation plan. Methods will assist in providing positive APP experiences that are specific, measurable, actionable, and realistic. Disease team specific CBOs will assist new APPs in adapting to new practice settings, verify APPs' initial competencies and skills to perform their new duties, communicate the mission, vision, and values of the organization and disease team, and possible reduction in the amount of time to bring new APPs to full productivity in their roles. APPs who have difficulty completing their initial competencies are quickly identified with the ability remediate/restructure their clinical experiences to

address those deficits or problem areas. CBOs offer numerous advantages for the APP mentors and hires. They provide clear guidelines regarding competency expectations which are ongoing and can decrease the amount of time spent in orientation for more experienced/skilled APPs.

### **CREATIVITY, OPTIMISM, PLANNING, AND EXPERT INFORMATION: A BONE MARROW TRANSPLANT CAREGIVING SKILLS STUDY**

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Patients who undergo bone marrow transplant (BMT) endure demanding treatment, and their selected caregivers have significant responsibilities. Caregivers are essential in the BMT process and may not be prepared for the expectations of the role. BMT caregivers attempt to balance the needs of their loved ones with their own. Nurses can be instrumental in addressing caregivers' needs and improving outcomes. The purpose was to describe how an evidence-based caregiving skills session (CSS), developed by an inter-professional team for patients undergoing BMT and their caregivers, affects patient distress, caregiver burden, and caregiver preparedness as compared to standard care. Forty-two participants were divided into an intervention group (IG) and a standard care group (SCG) based on enrollment date. The study occurred at a large Midwestern academic medical center. The CSS was a nurse-led multicomponent psychoeducational problem-solving skills session integrating the Creativity, Optimism, Planning, and Expert information (COPE) framework delivered in a group setting for patients undergoing BMT and their caregivers. The Johns Hopkins University Nursing Evidence-Based Practice Model<sup>®</sup> guided the development of the CSS and the implementation process. Differences were tested between the IG and the SCG. Patient distress, caregiver preparedness, and caregiver burden were measured with the National Comprehensive Cancer Network<sup>®</sup> Distress Thermometer, the Preparedness for Caregiving Scale, and the Bakas Caregiving Outcomes Scale respectively. A qualitative inquiry form was utilized to evaluate participant feedback of the CSS. Descriptive statistics, Fisher's Exact Tests, Wilcoxon/Kruskal-Wallis Tests, ANCOVAs,

pairwise-correlations, and content analyses were conducted. Patient distress decreased for both groups. Distress was positively correlated with the number of problems reported for the IG ( $r = 0.68$ ,  $p < 0.02$ ) and SCG ( $r = 0.90$ ;  $p < 0.0003$ ) post-transplant. Caregiver burden "changed for the best" for both groups. Overall caregiver preparedness increased over time ( $p = 0.01$ ). There were no statistical differences among the variables between the IG and SCG. Participants' feedback indicated the CSS was "meaningful" and "helpful." The CSS was effectively translated into clinical practice. The importance of caregiver self-care, healthy boundaries, and preparedness for the BMT caregiving journey were explored during the CSS. Findings demonstrate that both standard care and standard care plus the CSS delivered with patients and caregivers prior to BMT improve outcomes.

### **THE ABCs OF ONCOLOGY APP EDUCATION IN URGENT CARE: WHAT EVERY ONCOLOGY APP NEEDS TO KNOW ABOUT ONCOLOGY URGENT CARE**

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Our Oncology Extended Care Center (ECC) opened in April 2017. It is an APP driven unit with four budgeted full-time positions. The APPs have a mix of oncology and emergency medicine experience. The unit is open 16 hours per day, 7 days per week. Patients are by appointment only. Referrals to ECC are made by the disease team or by the oncology fellows. The purpose was to develop an educational program that assists in the orientation and competency of APPs working in oncology urgent care. Development of an educational curriculum for oncology urgent care, which included didactic and shadowing/orientation in the Oncology ECC. The curriculum focused on telephone triage of patients, ECC workflow, referral process to other disciplines, documentation, and billing. In addition, the assessment and management of common presenting symptoms/problems such as neutropenic fever/sepsis, fever, nausea/vomiting, diarrhea, dehydration, uncontrolled pain, dyspnea, cardiac issues, immunotherapy related toxicities, electrolyte imbalances such as hyperkalemia, hypokalemia, acute kidney injury, and oncologic emergencies such as hypercalcemia, spinal cord compression, SIADH, and tumor lysis syndrome. The didactic program was 4 hours in length and orientation to ECC for seasoned APPs is a minimum of 12 hours. The combination of didactic



content and “hands-on” approach has been shown to be beneficial and effective in the orientation/training of new skills. The didactic program covers all the key components required to care for patients seen in the Oncology Extended Care Clinic. The didactic education program will be transformed into evidence based treatment/management algorithms. Oncology specific urgent care education provides the necessary education and competency to care for oncology patients in the urgent setting. Oncology urgent care is a value added service within our organization as it has reduced the number of hospital admissions and ED visits as well as huge patient satisfaction as reported by Press Ganey. Seventy percent of patients seen in the ECC are discharged to home and there has been a 12% reduction in ED visits.

## **SYMPTOM ASSESSMENT AND MANAGEMENT IN MULTIPLE MYELOMA PATIENTS**

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The quality of life for individuals diagnosed with multiple myeloma (MM) is diminished when symptoms are uncontrolled. Therefore, it is important that nurse practitioners and physicians assess and manage the symptoms that MM patients experience. The aim of this study was to investigate the following questions: what are the most common disease and treatment related symptoms that MM patients report, how do NPs and MDs assess and manage disease related symptoms and is there a difference in documenting symptom assessment and management strategies between providers? This descriptive study explored symptoms that MM patients reported and conducted a retrospective chart review to gather information about symptom documentation. Patients were asked to participate in this study if they were on MM treatment and were scheduled to begin a new cycle of therapy. Patients signed a consent and filled out the Memorial Symptom Assessment Survey–Short Form (MSAS-SF) before the clinic visit. Descriptive statistics were used to analyze the symptoms reported in the survey as well as the information gathered regarding documentation of symptom management on chart review using a data collection tool. There were 36 participants that completed the survey and their medical records were reviewed. Survey results were compared to symptom documentation provided by the NPs and the MDs. Overall, the NPs were found to have more specific documentation of symptom assessment and management when compared to symptom documentation provided by MDs. This information will be used

to schedule MM patients with the most appropriate provider. More studies are needed to evaluate the professional contribution of the NPs in this type of oncology practice. The five most frequent symptoms reported by the participants in the survey were lack of energy (LOE), numbness, drowsiness, dry mouth, difficulty sleeping and diarrhea. The five most frequent symptoms reported in the chart review were peripheral neuropathy, diarrhea, fatigue, pain and difficulty sleeping. These symptoms differ from what is reported in the literature. The information from this investigation will be used to update patient education materials. In reviewing the survey data there was clustering of symptoms. Specifically, LOE and drowsiness were commonly reported, as was LOE, drowsiness and sleepiness. More studies are needed to describe the symptoms that MM patients experience while on therapy.

## **A QUALITY IMPROVEMENT PROJECT TO IMPROVE ADVANCE DIRECTIVES COMPLETION RATE**

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Advance directive (AD) is a legal document used to communicate wishes about medical care an individual wishes or does not wish to receive in case of incapacitation. Published literature indicates ADs can improve a patient's quality and length of life and lower stress, anxiety, and depression in family members. A review of the electronic health record (EHR) for a 6 month period in an outpatient clinic at a comprehensive cancer center revealed 59% did not have ADs. Of the 41% who had pre-existing ADs only 10% had copies of ADs in the EHR. The aim of the project was to increase the completion of ADs and/or provision of ADs (if patients had previous AD) by 10%. The intervention was directed to new patients referred to the clinic. This multifactorial intervention included: a) Video educational material to patients 1–7 days prior to the clinic visit, b) Review of patients' questions/concerns about ADs and referral of patients to a social worker for further education or completion of an AD by an advance practice provider during the clinic visit. Pre-intervention data was collected on 29 patients. 26 patients were eligible to receive the intervention. Of the 26 patients, 23 completed and 3 refused a survey about their experience with the intervention and completion/provision of ADs. 62% (16) received the video intervention within the timeframe of the project; and 38% (10) either received it later than intended for the project or did not receive it. Of the 23 patients,

13 reported reading the message and only 4 watched the video; the most common reason for not reviewing the message/video was not being unaware of it prior to the visit. Of the 13 patients, 15% (2/13) established ADs and 40% (2/5 with pre-existing ADs among the 13) provided ADs for the EHR. An oncology nurse directed interventions were successful in improving AD completion/provision rates in the clinic. Next steps include replicating the initiative with a larger sample across diverse oncology clinics to validate if the results are generalizable and sustainable across the institution. Multi-modal education and discussion of ADs with patients, particularly those with advanced cancer, is fundamental to providing patient-centered care and ensuring patient preferences are integrated across the care trajectory.

### **“STICKING IT TO THEM”—APPLICATION OF A TISSUE ADHESIVE TO SECURE AND STABILIZE PERIPHERALLY INSERTED CENTRAL CATHETERS**

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With the advent and popularity in peripherally inserted central catheter (PICC) use, reflected in clinical benefits, a growing body of evidence suggested they may also have significant consequences. PICC migration from the optimal position due to unsatisfactory securement may be avoided if stabilization was optimal. Novel securement devices have shown effectiveness; however, each device has had its challenges. There is a recognized need to recommend a securement method that is cost effective, yet provides securement and stabilization as defined. The intention of this quantitative, causal comparative, descriptive design was to describe the underpinning ideologies involved needed to evaluate the relationship existed between tissue adhesive applied at the PICC insertion site and the migration of the catheter. Participation included adult medical-surgical patients in a 280-bed acute care hospital in the southwest United States. Roger's diffusion of innovation provided the theoretical framework to guide the intervention from application of the collective process to an adoptive behavior. A two-sample t-test and chi-square test was used to analyze the continuous and definite variables. Statistical analyses applied to equate baseline to innovation, encapsulated the basic topographies of the solution and offered a qualitative narrative in a wieldy arrangement. Inferences presented no catheter migrations with a  $p = .010$  (FE 0.02), which was statistically significant. This study

supported tissue adhesive as a safe, inexpensive, and highly effective alternative to secure and stabilize PICCs. Further studies are recommended to speak to the continued use and the sustainability of tissue adhesive for securement and stabilization of PICCs.

### **THE ROLE OF ADVANCED PRACTICE PROVIDERS IN DEDICATED CANCER SURVIVORSHIP CLINICS**

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The Institute of Medicine's report, *Lost in Translation* outlined specific guidelines on how to provide follow-up care to cancer survivors. These guidelines recommended that follow-up care should be conducted within an interdisciplinary setting with a dedicated team of health care providers who are experts in their particular field. In our dedicated survivorship clinics, the survivorship visit is led by an advanced practice provider (APP), i.e. advanced nurse practitioners/registered nurses and physician assistants. The APP follows site-specific and evidence-based clinical algorithms to provide a standardized process for the survivorship visit. This systematic process focuses on establishing effective communication with the survivor regarding follow-up of results, referrals to supportive services, and counseling on life-style changes. The purpose of this abstract is to describe the unique role of the APP in providing comprehensive survivorship care which uses an interdisciplinary team approach. Donebadian's theoretical framework was selected to deliver coordinated care which focused on 3 areas: structure, process, and outcomes. In this model, the APP must have the clinical and academic preparation to conduct a comprehensive history and risk assessment of the physical/ psychological function, navigate and coordinate services tailored to the individual, provide counseling and education specific to the needs of the survivor, and identify those who may qualify for clinical trials. The APP provides the infrastructure needed to deliver multi-faceted interventions for cancer survivors who require specialized follow-up care. The success of this model and infrastructure was been established with the following metrics: 1) the sustainability and expansion of the survivorship clinics, 2)

the increase in the number of survivors seen in these clinics, 3) the demands for consultations on how to develop a nurse-led survivorship clinic infrastructure, 4) number of survivorship care plans (ie. treatment summaries and follow-up care plans) issued to survivors, and 5) the number of survivors returning for their annual visits. Advanced oncology nurse practitioners and other APPs with higher levels of education and clinical training are well-positioned to advance and transform cancer survivorship care. There are multiple models of care for survivorship care, however, emerging research suggests the APP model may be more efficient and effective in improving survivor's outcomes.

### **EVALUATING THE FEASIBILITY OF A NURSE PRACTITIONER-LED LIFESTYLE MODIFICATION EDUCATION PROGRAM IN OBESE WOMEN WITH ENDOMETRIAL CANCER**

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Endometrial Cancer is the most common gynecologic malignancy and the 4th most common cancer among women in United States. Traditionally recognized as a disease of postmenopausal women, endometrial cancer is becoming more prevalent in the younger, premenopausal population. The increased incidence is profoundly attributed to the rising U.S. obesity epidemic, as obesity is responsible for up to 81% of endometrial cancer diagnosed worldwide. Obese women who have successfully completed treatment for endometrial cancer are more likely to die from obesity-driven diseases, such as cardiovascular disease and diabetes, than of the endometrial cancer itself. The link between obesity and cancer is well established within the medical community, yet there remains a widespread lack of knowledge among patients regarding this conspicuous relationship. Since obesity is correlated with increased risk for endometrial cancer, and body weight is modifiable, there is the potential for cancer prevention and improved long-term survival. The goals of this program evaluation project were to determine the acceptability and feasibility of a nurse practitioner-led lifestyle modification education intervention in the outpatient cancer center among endometrial cancer survivors. Utilizing the conceptual framework of Prochaska and DiClemente's Transtheoretical Model (TTM) of Change, this project aimed to evaluate the preliminary effect of education on readiness to lose weight in obese survivors of endometrial cancer, identify patients' perceived barriers

to weight loss, and evaluate patient satisfaction with the program. An embedded concurrent mixed methods design with a one-group pre-test/post-test survey was employed, using the validated University of Rhode Island Change Assessment (URICA) scale. Qualitative data were embedded within this approach, exploring participants' perceived barriers to weight loss and satisfaction with the program through semi-structured individual interviews and analyzed through content analysis. Data analysis is currently in the early stage with projected final results by December 1, 2018. Preliminary review of data reveals improvement in readiness to change scores across the majority of patients and common themes are being uncovered via content analysis. Future directions include utilizing information to aid in the development of tailored lifestyle modification interventions to meet identified needs of patients in this population, and application of results to larger scale to inspire a practice change in cancer care; where lifestyle modification education becomes an essential component of cancer survivorship.

### **NURSES' MANAGEMENT OF PERIPHERALLY INSERTED CENTRAL VENOUS CATHETERS (PICCs), THEIR COMPLICATION RATE AND ONCOLOGICAL PATIENTS' SATISFACTION: A PROSPECTIVE COHORT STUDY**

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The use of peripherally inserted central venous catheters (PICCs) for chemotherapy has increased in recent years. PICCs positioning procedure is less risky and more simple than other central catheters. In 2015 a nurses PICCs team was created in our Institute. Different from other contexts, in our PICC team nurses are responsible for the overall management of the device, from the implantation to the removing. The purposes of this study were to investigate the nurses' role in the management of the PICCs and complications in cancer patients, and to assess patients' satisfaction. We prospectively evaluated the complications of PICC in a cohort of oncology patients, and the nurses' role in managing them. Satisfaction was assessed by means of a Likert scale from 0 (not satisfied) to 10 (very satisfied). Logistic regression was

used to assess correlations between complications and the principal variables considered. We implanted 236 PICCs in 226 patients from January 2016 to August 2018, with a median follow-up of 79.5 days for a total of 22960 catheter days. Principal complications were mechanical complications 18 (7.2%) (i.e.: rupture, obstruction, malfunction) (rate of 0.78 per 1000 catheter days), accidental removal 17 (7.6%) (rate of 0.74 per 1000 catheter days), thrombosis 14 (5.9%) (of 0.41 per 1000 catheter days), and infection 8 (3.4%) (rate of 0.35 per 1000 catheter days). The most common indications for PICC insertion were chemotherapy (65.3%), difficult intravenous access (26.7%), long lasting therapy (4.7%) and intravenous antibiotic therapy (3.4%). The most used access veins were right brachial (50.8%) and right basilic (28%). The most common method of PICC placement verification was the X-Ray (79.2%). Patient satisfaction was very high (8.5, SD  $\pm 1.63$ ). Logistic correlation showed no significant correlations between complications and the principal variables considered. Complication rates were below the ones reported in literature. PICCs resulted to be safe and acceptable devices for chemotherapy in oncological patients. Nurses were able to manage the PICCs from the implantation to the removing. Patients were satisfied with the device. Based on our best knowledge, this is one of the few studies that evaluated nurses' role in the management of PICCs and patients' satisfaction with them. Complication rates remained below the ones reported in literature, confirming the reliability of nurses in the management of the device.

### PRODUCTIVITY OF AN APRN RUN SURVIVORSHIP CLINIC

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Sylvester Comprehensive Cancer Center at UHEALTH has 7 campuses spread out over 60 miles in South Florida and provides support to patients and survivors. As an institution that has maintained Commission on Cancer (CoC) accreditation since 2005, we recognize it is challenging for institutions to justify additional resources to support program standards. The survivorship standard 3.3 requires the coordination of multiple departments and institutional support to be effective. At Sylvester we have created nurse practitioner (NP) led survivorship clinics. Our

first clinic launched in January 2017 and was limited to one provider. The CoC standard states that survivorship care plans (SCP) must be delivered by either a physician, registered nurse, advanced practice nurse, NP, physician assistant or credentialed clinical nurse navigator. To justify dedicated resources of a nurse practitioner led survivorship clinic, we created a hospital specific department to isolate revenue generated for this service. Leadership's continued support to the CoC accreditation provided us the opportunity to work with finance, information technology (IT) and accounts receivable. In order to begin validating hospital and professional billing charges we created a hospital-based department (DEP) to be able to better track the revenue specific to survivorship. The reason this is a hospital-based department is to avoid billing error with other department specific clinics. Looking at one full time survivorship NP from quarter 3 calendar year 2017 through quarter 3 calendar year 2018 we found that hospital and professional billing charges justified an NP salary. The implementation period of this DEP creation was between 4–8 weeks from start to finish. The accounts receivable department captured the revenue tracking and can then generate a report as requested. Based on DEP creation, billable visits for the Allied Health Department (survivorship clinic) for both hospital and professional billing amount to \$97,682 in one calendar year. Our data supports nurse practitioner led clinics. Utilizing this information, we have been able to justify additional nursing resources to sustain this program standard. As survivorship visits are not deemed mandatory, hospital billing charges can be waived by the practitioner. It is up to the provider to look at institutional practice protocols and state board of nursing regulations on practice.

### PREPARING THORACIC SURGERY ADVANCED PRACTICE PROFESSIONALS (APPs) FOR CANCER SURVIVORSHIP CARE

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According to the American Cancer Society there are more than one million new cancer patients added each year to the 13.7 million cancer survivors alive today. Despite the rise in cancer survivors, there has not been a similar rise in training related to cancer survivorship care for APPs. Thoracic Surgery APPs at the James Cancer Hospital and Solove Research Institute will provide these expanded services, but have not received cancer survivorship education. The purpose of this

project was to prepare APPs to deliver survivorship care to thoracic surgery cancer survivors in an APP-led disease specific cancer survivorship clinic. This project helps enable APPs to focus on helping patients cope well by addressing late and long-term effects of cancer and its treatments. Thoracic Surgery APPs completed cancer survivorship education utilizing e-learning modules prior to beginning the survivorship clinic visits. The education consists of six one hour modules, on cancer survivorship care. Patients eligible for survivorship care are seen in the thoracic surgery survivorship clinic by the APPs. Each visit included development and review of a Survivorship Care Plan (SCP) which includes a treatment summary, surveillance plan, standard screening assessments, plan for nutrition and exercise. The patient is encouraged to develop achievable goals to help guide future visits. A patient satisfaction survey is completed following the survivorship care visit. Patient satisfaction data will be reported in aggregate. Provider data will be obtained post intervention from each APP, related to effectiveness of cancer survivorship education. In addition, development of survivorship care plans and number of referrals for Cancer Support services will be compared pre and post educational content. National Cancer Organizations and experts call for health care workers to obtain education related to the late and long-term affects cancer treatments have on cancer survivors. This gap may be addressed by providing an online survivorship training program for APPs. The APP workforce must deliver treatment essential to the survival and future health of patients with cancer. Incorporating survivorship care in disease specific clinics will assist in addressing cancer survivor's long-term care needs.

### **ONCOLOGY CLINICAL NURSE SPECIALIST LED MULTIDISCIPLINARY PROSTATE CANCER CLINIC**

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Prostate cancer is the most common cancer in American men, but the diagnosis is not synonymous with death. Men experience anxiety and distress with the diagnosis of prostate cancer. Having an increase in anxiety and distress motivates men with low risk prostate cancer to choose a more aggressive form of treatment instead of active surveillance. Providing men with education and information about prostate cancer and treatments greatly reduces the patient's

distress and anxiety. OhioHealth Cancer Services developed a Multidisciplinary Prostate Cancer Clinic (MPCC) to educate, evaluate, and guide men on available treatments. The MPCC consists of an advanced oncology clinical nurse specialist (AOCNS), urologic surgeon, radiation oncologist, medical oncologist, sexual health physician, and pelvic floor physical therapist. The AOCNS coordinates care, educates patients, assesses distress levels and provides resources. The men also receive education regarding prostate cancer, a review of the National Comprehensive Cancer Network (NCCN) guidelines for the treatment of prostate cancer, and individualized plans with treatment recommendations. The men leave the clinic with the confidence that they have the information to make informed decisions about their care. For the patients who attended the clinic each month, their distress level was tracked prior to the clinic and one week after the clinic using the NCCN Distress Thermometer. Their satisfaction level in regards to the clinic was also measured. Starting June 2017, 30 men attended the MPCC. Of the 30 men, 16 (53%) had a distress score of 3 or higher prior to the clinic. Of those 16 men, 9 (56%) had a decrease in their distress score when reassessed one week later. The average satisfaction score was 4.9 / 5. By offering the clinic with an opportunity to meet with a multidisciplinary team, informed decision making provided an avenue for the patients to better understand options in a convenient appointment—indicated by favorable after visit survey comments. The clinic continues to meet once per month with a goal to increase up to 6 patients per clinic. In an attempt to expand the reach of this community benefit, efforts are being made to increase awareness and referrals to this free clinic.

### **BRIDGING THE GAP: A CLINICAL NURSE SPECIALIST INITIATIVE TO FACILITATE CARE BETWEEN TWO INDEPENDENT HEALTH SYSTEMS**

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Patients in a Southwestern city of the United States frequently access general medical and oncology care through two independent health systems for a host of reasons (e.g., convenience, familiarity, transportation). These systems joined forces through a legal collaboration to provide and optimize comprehensive oncology services. One system has no oncology program but admits oncology patients for acute care and maintains a large outpatient clinic population. The second system offers comprehensive oncology



services. Both systems were unable to effectively communicate; negatively impacting optimal patient care. Integration and optimization of oncology care services across the two systems was critically needed. The purpose was to streamline optimal delivery of oncology care to patients seeking care through two independent health systems. An oncology clinical nurse specialist (CNS) created the Transitional Care Navigator (TCN) position to integrate care between the two systems. The CNS created the TCN role with consideration of: (1) the transitional model of care; (2) financial clearance requirements; and (3) identification of “champions” to support the role. A TCN was implemented providing inpatient/outpatient care coordination, staff education, and follow-up phone calls within 48 hours of discharge. Key support staff included a financial counselor who interfaced exclusively with collaborative patients. Within four months of implementation, approximately 150 patients have benefitted from the TCN. Specifically, decreased time between multidisciplinary care and follow-up in hospitals, emergency rooms, and outpatient clinics of the two health systems, has been documented. Additionally, a standardized inpatient chemotherapy process has been introduced and supported at the system with no oncology program. Finally, oncology care standardizations are being established across both systems. CNS implementation of the TCN role has optimized patient care across two independent health systems, benefitting patients and health care providers alike. Patients, especially those newly diagnosed, have experienced expedited care, better symptom management, and fewer readmissions. Health care providers have been supported to provide more efficient quality oncology care. Clinical nurse specialists practicing in any health system caring for patients who regularly access care in additional health systems, could implement this TCN role to improve and expedite oncology care.

### **LIFE AFTER BREAST CANCER: A CLINICAL NURSE SPECIALIST LED MULTIDISCIPLINARY APPROACH TO BREAST CANCER SURVIVORSHIP**

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Breast cancer represents the largest group of cancer survivors. Research indicates the majority of breast cancer survivors experience a number of long-term physical, psychological, and financial effects following treatment. There is evidence that survivors who

have attended a survivorship clinic are more likely to feel their concerns were addressed and to be compliant with recommended follow-up. The purpose was to establish a Clinical Nurse Specialist (CNS) led, personalized, comprehensive Breast Cancer Survivorship clinic, based on National Comprehensive Cancer Network (NCCN) Survivorship Guidelines. A CNS led multidisciplinary team was formed and the Breast Cancer Survivorship Clinic was initiated in April 2017. Other team members include: physical therapist, dietitian, social work counselor, and genetic counselor. Triage and scheduling of referrals are done by the CNS. Pertinent patient information is sent to the care team prior to clinic. Upon arrival, patients complete a self-reported rating of their symptoms and identify issues to be addressed during clinic. Patients meet individually with each member of the team. A personalized survivorship transition plan is developed. The CNS reviews the transition plan with each patient, facilitates implementation of the plan, and provides education regarding survivorship issues and follow-up. A post clinic summary is sent to providers. Ninety-six (96) women have been seen in clinic. Average age is 49 years. Disease stage ranged from 0–IIIB. The most frequent self-reported survivorship issues include nutrition/weight management, fear of recurrence, fatigue, and emotional distress. Referrals made from survivorship clinic include: Oncology Rehab (64), Integrative Medicine (55), Genetics (16), and Cancer Wellness (28). Average rating for “overall value of attending this program” is 9.79, on a scale of 1–10. The opportunity to see five clinical specialist at one appointment and the personalized approach are cited as most helpful. Offering later appointment times is cited as area for improvement. Based on participant feedback, several initiatives have been launched. These include, an eight week Weight Management for Cancer Survivors program and a voucher process providing opportunities for follow-up services such as counseling, integrative medicine, exercise, and weight management services. Next steps include expansion of clinics to include other sites and cancer diagnosis. This setting has proved a natural setting for the CNS role of impacting care across the spectrum of survivorship.

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### **CLINICAL PRACTICE**

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### **INPATIENT ONCOLOGY NURSES ARE KEY FACILITATORS IN ADOLESCENT/YOUNG**

## ADULT ACUTE LYMPHOBLASTIC LEUKEMIA ALGORITHM IMPLEMENTATION

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In 2018, Acute Lymphoblastic Leukemia (ALL) will affect greater than 1300 Adolescents and Young Adults (AYAs), ages 15–39, in the United States. AYAs demonstrate age-related barriers, placing optimal care at risk. Financial burdens, infertility potential, transportation, school, employment issues, childcare, anxiety, and depression, complicate care delivery and translate into survival rates for AYAs that lag behind those of children and adults. Inpatient ALL induction therapy places the oncology nurse in a key position to assess and address patient care concerns, facilitate multidisciplinary team involvement and promote optimal treatment outcomes. Delineate inpatient oncology nursing's role in facilitating an age-appropriate, multidisciplinary approach to ALL induction for AYAs. A multidisciplinary team of oncology professionals including: hematology-oncology physicians, pharmacist, rehabilitation specialist, palliative care, inpatient nursing, oncology nurse educator, practitioner, and clinical specialists collaborated to create an evidence-based induction algorithm for AYA's with ALL. Age-specific issues such as fertility preservation, financial concerns and support services were incorporated into the algorithm. Recognizing the importance of technology to AYA's, nursing secured grant funding for fitness trackers to promote physical activity and self-care engagement during prolonged hospitalization. Collaborative rounds attended by providers, primary nurse, case manager, pharmacist, nurse leaders and clinical nurse specialist were implemented to enhance interdisciplinary communication. Daily nursing huddles provide a forum for interactive case discussion and feedback from nursing specialists. Education regarding age-specific care for AYAs was provided for nurses and focused on physical assessment, behavioral and psycho-social considerations, and appropriate nurse-driven referrals for cancer support services. The ALL in AYA algorithm was implemented in June 2018. Presently 5 patients have been treated according to algorithm components. Nurses report multidisciplinary rounds promote collaboration and expedite meeting care needs; educational sessions stimulate confidence in addressing age-related needs in AYAs. Nursing is a vital part of treatment induction care for AYA's with ALL. This at-risk population requires an individualized,

evidence-based care approach, facilitated by the primary nurse, to inspire trust and compliance. A multigenerational nursing workforce benefits from targeted education addressing age-related needs in AYAs. Innovative use of technology to promote patient engagement in self-care is well-received. Additional opportunities, including an AYA-friendly space to engage in recreation with peers undergoing treatment, are being discussed.

## SUCCESSFUL HOSPITAL ACQUIRED PRESSURE INJURY PREVENTION STRATEGIES FOR AN INPATIENT ONCOLOGY UNIT

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A pressure injury is defined as localized damage to the skin and underlying soft tissue, often occurring over a bony prominence. Hospitalized patients with cancer have several risk factors associated with pressure injury including reduced activity, perfusion, mobility and nutrition deficits. The incidence of hospital-acquired pressure injury (HAPI) for hospitalized patients is estimated at 0.57 per 1000 patient days. The incident rate on this NCI-designated comprehensive cancer center inpatient unit was 1.18 in 2017, exceeding the benchmark and prompting an analysis of clinical practice and identification of improvement opportunities. The project goal was to reduce avoidable HAPI by 50% on the inpatient oncology unit. A survey evaluating staff knowledge and attitudes related to HAPI was conducted to guide project development. The response rate for nurses and patient support technicians (PCTs) was 47%. Results indicated 50% felt knowledgeable about preventing HAPI, 78% stated they "forgot" to document turning patients, and only 29% of survey respondents said they prioritized HAPI prevention. A patient survey was also developed to assess the patient's perception of HAPI prevention and staff use of preventative measures. Of the 30 patients that responded, 92% felt they understood what a "bedsore" was and felt that getting a bedsore was "serious". Most felt it was important to take care of the skin underneath medical devices. About 52% of the patients reported staff had never educated them about bedsore prevention. Several interventions were implemented based on survey findings. An on-line education module incorporating correct use of the Braden Scale, criteria for specialty mattresses, barrier

creams, pressure device injury prevention, and chain of command escalation was developed and completed by staff. A “turning sign” was designed to alert staff to patients requiring every two-hour turning. A skin care products poster was created and posted in the supply room providing information on each product’s purpose. Feedback, via ongoing audits, ensured at-risk patients were identified and proper prevention strategies were implemented in a timely fashion. Successful reduction in HAPI requires collaboration between nurses and PCTs and systemic evaluation of clinical practice to identify improvement opportunities. Prevention strategies reduced the HAPI rate by 50%, meeting the project goal. Ongoing HAPI audits confirm that HAPI prevention strategies are appropriately implemented in 100% of at-risk patients.

### **ONCOLOGY NURSE ROLES AND CARE DELIVERY IN AN AMBULATORY IMMUNOTHERAPY CLINICAL TRIALS UNIT**

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A comprehensive ambulatory cancer center (n= 8,000 annual patients), in 2016 opened an IMTX unit dedicated to the new modality of Chimeric antigen receptor T-cell therapies (CAR-T cells). A care delivery model of co-located services was adopted for this implementation of early phase CAR-T cell research in hematologic malignancy patients at risk for potentially emergent toxicities of treatment, (CRS and neuro-toxicity). The purpose was to create patient-centered care delivery model with nursing roles specific to enactment of best practices for CAR-T cell therapy in ambulatory IMTX center. The IMTX unit identified 3 key nurse practice roles: clinical nurse coordinators (CNC), infusion nurses, and charge nurses. The CNC is the primary contact for patient and families, performing comprehensive clinical assessments, symptom management, clinical research education, and emotional and spiritual support. Infusion nurses perform blood draws, administer chemotherapy/biotherapy, blood products, fluids, and fresh/cryopreserved T-cells, as well as assist in lumbar puncture and bone marrow biopsy procedures. All nurses in IMTX triage calls and coordinate patient care with teams. Charge nurses implement daily management of IMTX team nurses, APP’s, and patients focusing on optimizing quality patient care and interdisciplinary communication. The primary challenges for the IMTX

care delivery model revolve around communication. Interdisciplinary rounds, as well as immediate team consultation facilitated by co-location keeps patient care consistently central to all endeavors. Daily team “Huddles” incorporate opportunities to evaluate the process in real time. Practice concerns are referred to IMTX Local Practice Council for issue mitigation and change implementation. The vision for our CAR-T cell IMTX Unit was to create a dedicated unique environment where patients are truly the center of care delivery in one geographic space. Operational clarity on multidisciplinary team and nursing roles mandates commitment for staff interconnection while enacting distinct, separate responsibilities. This norm of collaborative engagement is paramount to successful outcomes for patients as the latest science moves from bench to bedside. The nurses in IMTX are pivotal to the translation of CAR-T cell care to patients.

### **DEVELOPMENT OF POST-BONE MARROW TRANSPLANT CARE REFERENCE FOR ALLOGENEIC STEM CELL TRANSPLANT PATIENTS**

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Allogeneic Bone Marrow Transplant (BMT) patients require a tremendous amount of monitoring, support and education post-transplant. It is vital that home care agencies possess the knowledge needed to care for these patients. BMT Coordinators, Advanced Practice Providers (APP), and patients, all had the same concern; home care nurses were lacking post-BMT care knowledge. This lack of knowledge was a monumental barrier for home care nurses, due to the specialized nature of a BMT. As a result, this high-risk patient population was in danger of re-admission for an adverse event that could have been prevented. This clinical abstract is designed to describe and share the educational tool developed to ensure home care nurses are providing adequate care to post-BMT patients. This was done through a multidisciplinary team approach that empowered the nurses with the educational competency needed to demonstrate safe and high quality care. Home healthcare nurses learned early recognition of adverse events; allowing post-BMT patients to seek additional treatment early on in order to decrease infections and potential complications in hopes of maximizing their life expectancy and quality of life. The Allogeneic Post-BMT Care Reference was distributed to home care agencies upon an allogeneic patient’s discharge from the inpatient BMT Unit. The multidisciplinary team’s expertise made it possible

to identify barriers in high quality post-BMT patient care. Development of the Post-BMT Care Reference involved collaborative efforts from inpatient nurses, APP's, Oncologists, and home care nurses based on patient concerns and a potential preventable re-admission diagnosis. Competency was developed in the home care nurses through discussions and written materials in order to provide safe and effective care. Home care agencies were given the written materials needed to provide home care nurses with the knowledge to adequately care for post-BMT patients. A preliminary literature search of post-BMT patient care was conducted with minimal results. Improvement in care delivery, communication, and patient advocacy will be maintained through use of this reference guide. Home care nurses will now be able to recognize adverse events; allowing patients to seek additional treatment early on, before it becomes difficult or impossible to correct. A better understanding of post-BMT allogeneic patient care will lead to a decrease in BMT related re-admissions and an increase in patient quality of life.

### **IMMUNOTHERAPY PATIENT WALLET CARD: IMPROVING COMMUNICATION WHERE IT MATTERS MOST**

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As the number of patients receiving immunotherapy agents continue to grow, so too does the potential for non-oncology clinicians to need to manage immune related toxicities. The similarities in the side effect profile of chemotherapy and immunotherapy agents are striking, yet their mechanism of action and evidence-based management strategies differ greatly. Oncology clinicians have the added responsibility of ensuring their non-oncology colleagues are aware of how immunotherapy varies from chemotherapy and other antineoplastics. ONS immunotherapy wallet cards were developed to improve communication between oncology and non-oncology clinicians. The card enables patients to carry information about their treatment and side effects to appointments with non-oncology providers. The goal is to inform providers who may not be involved with a patient's cancer treatment that the patient is receiving immunotherapy, and this will greatly impact their care. The wallet card prompts oncology providers to indicate whether the patient is receiving checkpoint inhibitors,

monoclonal antibodies, adoptive cell therapy, vaccines or oncolytic viral therapy. Wallet cards include information about expected side effects and cautions providers to be aware that side effects, while they may mimic those of chemotherapy, require vastly different management. The card includes a prompt to contact the oncology care team before altering immunotherapy treatment regimens. Since first released in January 2018, over 90,000 Immunotherapy Wallet Cards have been ordered by providers, nurses, pharmacists, and patients. ONS launched a survey in September 2018 targeting those who ordered cards to ascertain outcomes from their use. Results will be known at time of abstract presentation. Immunotherapy as a form of cancer treatment is growing at an exponential rate and brings many questions about adverse event management. The ONS Immunotherapy Wallet Card offers a strategy to help mitigate the unanticipated effects of such rapid growth of this class of treatment, and ensure patients have a way to communicate treatment status and side effects likely to affect this patient population. The ONS Immunotherapy Wallet Card represents the only non-branded patient communication tool of this intent to date. Additionally, the development of this wallet card recognizes the importance of oncology nurses to ensuring non-oncology clinicians understand the implications of immunotherapy side effect mismanagement and offers an avenue to ensure communication across care settings.

### **SURVIVING SURVIVORSHIP: STEPPING UP TO MEET THE STANDARDS**

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The 2005 Institute of Medicine (IOM) report, *From Cancer Patient to Cancer Survivor: Lost in Transition*, revealed gaps in care continuity and recommended that cancer patients receive a survivorship care plan. This contains information critical to a cancer patient's long term care. Both Commission on Cancer (COC) accreditation programs and National Accreditation of Breast Center Programs (NAPBC) are required to implement a survivorship care plan distribution process. The purpose of this project is to improve

completion and distribution of survivorship care plans starting in 2015 at a baseline of 10% to a goal of 50% at the end of 2017. A survivorship care plan distribution process was implemented in 2015. A policy and procedure was developed through multidisciplinary team collaboration. The American Society of Clinical Oncology (ASCO) template was used to help create a comprehensive Survivorship Care Plan (SCP). Eligibility criteria set by COC standard 3.3 and NAPBC standard 2.20. Total number of patients based on previous year analytic cases stages 0–3 treated with curative intent. Eligible patients identified through various methods (Radiation oncology consults, pathology, outpatient infusion new patients, inpatient referrals, tumor boards, and cancer tumor registrar database). The SCP is completed and delivered by an Oncology Clinical Navigator. The SCP is reviewed with the patient at the end of active treatment. The patient also receives individualized education, follow up recommendations, and resources at this time. With patient permission, faxed copies of the signed SCP are faxed to their PCP. Completed SCP's are documented in a designated database. These numbers are reviewed monthly to make sure that COC and NAPBC standard requirements are meeting benchmark. In 2015 50% of breast cancer patients and 14% of all cancer sites received survivorship care plans. In 2016 100% of breast cancer patients and 25% of all cancer sites received survivorship care plans. In 2017 89% of breast cancer patients and 51% of all cancer sites received survivorship care plans. Each year since 2015 CMC has increased the distribution of Survivorship Care Plans in order to meet the end goal of 50%. This project demonstrates the continuing dedication to quality improvement within our cancer center.

### **RESOURCES FOR ONCOLOGY NURSES TO PROVIDE PHYSICAL ACTIVITY RECOMMENDATIONS TO CANCER SURVIVORS**

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Physical activity (PA) benefits cancer survivors (i.e., persons across the cancer continuum—from diagnosis through the end of life) at all points in survivorship. During active treatment, PA improves fatigue, quality of life and physical functioning. Following treatment, PA is associated with decreased recurrence risk and decreases long-term and late effects. In the 1980s, two pioneer nurses, Mary MacVicar and Mary Winningham, made the first PA recommendations for survivors, based on their landmark discovery that PA reduces nausea for those undergoing chemotherapy. Today,

oncology nurses (ONs) remain the most likely health care professional to provide PA recommendations to survivors. Yet, only 66% of ONs report providing PA recommendations, conversations are documented in only about 55% of encounters, only about one-third of survivors report receiving PA advice and most survivors do not achieve the minimum recommended 150 weekly minutes of moderate-intensity PA. However, most survivors want to receive PA recommendations from ONs. Barriers to ONs providing PA recommendations to survivors include lack of time, knowledge and resources. Thus, survivors not receiving PA recommendations from ONs remains a problem. The purpose of this project was to identify PA resources that ONs can use to provide PA recommendations to cancer survivors. PubMed, CINAHL, and websites of professional oncology associations were searched to identify research articles, clinical guidelines and resources about PA for survivors. The GRADE and AGREE criteria were used to evaluate research articles and clinical guidelines, respectively. Resources and recommendations applicable to oncology nursing practice were identified from the American Cancer Society, American College of Sports Medicine, National Comprehensive Cancer Network, U.S. Department of Health and Human Resources and the Oncology Nursing Society. The most recent seminal resource identified is a 2018 publication developed from the interdisciplinary national forum held in 2017 to update the state of the science on PA for cancer survivors. The most comprehensive and implementable resource identified is the Oncology Nursing Society's Get Up, Get Moving Campaign. Oncology nursing practice can be improved with implementation of these PA resources. Implications of ONs providing more PA recommendations include improved duration and quality of survivorship. Focus on the most recent national forum and using resources created by nurses, for nurses, is a novel approach for ONs to continue pioneering survivor receipt of PA recommendations.

### **ENSURING BEST PRACTICES FOR ONCOLOGY NURSES THROUGH EVIDENCE-BASED POLICIES AND PROCEDURES**

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The importance of evidence-based healthcare has been well established, but delivery only occurs 50–55%



of the time. Policies and procedures play an essential role in engaging nurses in evidence-based practice and decreasing practice variation. However, nurses frequently report a lack of awareness and difficulty accessing policies. In 2017 our large, multi-site oncology institution embarked on a major initiative to restructure and reorganize our Nursing Policy and Procedure Manual (NPM). The organization made a deliberate investment in hiring a long tenured nurse with a clinical background across multiple divisions as well as leadership experience to coordinate this effort. A baseline survey of 667 oncology nurses revealed low utilization of the NPM due to poor usability, inability to quickly find what they needed, and not being up-to-date. 11.67% of RNs stated they never used the NPM and 9.86% said they never knew it existed despite inclusion in standardized orientation. A multifaceted approach was initiated to improve the NPM including leveraging technology to improve search functionality and integrating an externally hosted policy and procedure resource for non-specialized procedures to improve policy management. In one year, the number of policies was reduced from 800 to less than 250. Policies with redundant or related processes and content were bundled and consolidated which served to standardize practice across multiple sites and divisions. Post-survey results of 537 nurses 6 months after launching the new NPM revealed an increase in overall use; a 26% increase in those who used it several times per day; 18% increase in those who use it daily; and a 30% increase in those who use it multiple times/week. There was a 63% reduction in nurses who answered that they never used the NPM and no nurses reported they did not know the NPM existed. There was also improved satisfaction in all categories measured (visually appealing, easy to find, categories intuitive, content relevant, meets needs, recommend to others). The process, model and website usability strategies used here can be applied to other large complex oncology health organizations in order to streamline and leverage available important resources for oncology nurses. Hospitals dedicated to providing safe and evidence-based care to patients must ensure their policies and procedures are readily available and easy to use.

#### **DEVELOPING AN URGENT SYMPTOM TELEPHONE TRIAGE MODEL**

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Telephone triage has grown in importance in oncology practices as the care of patients has transferred largely to the outpatient setting. Our current system

of addressing patient calls depended largely on voicemail that left a potential for delays in addressing patient care needs. There was not a standard process for reaching a nurse right away when patients were experiencing urgent symptoms. A system was needed to expedite the triage process and ensure that patients received timely and appropriate responses to their calls. Additionally, we lacked phone triage standardization and guidance to manage these calls. Our goal was to eliminate messages left on voicemail by providing patients an opportunity to speak to a nurse 100% of the time when experiencing an urgent symptom. This will enable the healthcare team to provide prompt attention, evaluation and treatment of urgent symptoms. To support the triage nurse with standardized clinical assessment and guidelines, the decision was made to incorporate the ONS Telephone Triage for Oncology Nurses guidelines into our electronic medical record. A multidisciplinary team was formulated. The team identified urgent symptoms, created standardized patient instructions on urgent symptoms, and created guidelines for the operators on how to handle patient phone calls. A standardized process was determined with feedback from the staff, physicians and cancer center operators. The staff were educated on the new process as well as standardized patient instructions on urgent symptoms. We implemented a dedicated triage line and assigned triage nurses to manage calls. We purchased the license to use the ONS Telephone Triage for Oncology Nurses guidelines within our electronic medical record. Patients have consistent education on what urgent symptoms are and when it is appropriate to contact the triage nurse. The new process makes it possible for all patients to have an opportunity to speak to a nurse 100% of the time. Patient satisfaction scores on "ease of getting clinic on the phone" went from a top box score of 53.9% to 65.1%. It was challenging to find the best way to incorporate the triage guidelines into the EMR that was quick and easy to use for the triage nurse. Overall, there was improvement in timely and appropriate responses to patient calls and improvement in the patient experience.

#### **CHECK-IN TOOL: STARTING THE CONVERSATION WITH NEW ORIENTEES IN AMBULATORY SETTING**

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As more treatment for cancer patients shifts from inpatient to outpatient, it is essential to ensure nurses

are prepared for this unique care delivery setting. The unit leadership triad which includes the educator, Clinical Nurse Specialist and nurse manager are essential to achieving this. Routinely meeting is essential to assess progress of the orientee and provide support to orientees and preceptors. In one academic medical center with a large outpatient hematology service, the topics for the check-ins varied from orientee to orientee and created inconsistency in what was being evaluated for each week. A check-in tool was deemed needed to enhance this process. The unit CNS led the creation of a check-in tool. The purpose of this tool is to standardize check-in content with new orientees. This tool also allowed proper documentation of topics discussed. In December 2017, the CNS gathered common content covered in check-ins such as review of expectations, required classes, review of documentation and overview of the library. This tool also included open-ended questions to stimulate conversation. Questions such as “What is the most important thing we should be talking about today?” or “What was the highlight of your week?” The tool was reviewed and finalized with the leadership triad. Utilization of this tool began in January 2018. Since implementation, a total of 16 outpatient nurses were hired, and the check-in tool was used with 10 (63%). 80% were fully completed. Issues identified during the check-ins included lack of interpersonal skills, personal phone usage, access to supply rooms/keys, and uncompleted mandatory classes. Most concerns were addressed prior to completion of the orientation, preventing delays in the on-boarding process. The tool also provided a way for orientees to reflect on their clinical experiences. An electronic copy is filled out and shared with the leadership triad. Check-ins became more consistent when utilizing the tool. Ensuring nurses are prepared to provide care in any setting requires diligent oversight and guidance throughout orientation. The utmost attention must be given to new nurses to ensure they can provide safe patient care post-orientation and to identify challenges as early as possible. Other teams who on-board nurses could utilize a similar tool to structure and standardize their orientation check-in process.

### **UTILIZING TECHNOLOGY TO STREAMLINE COORDINATION OF CARE FOR PRE-TRANSPLANT PATIENTS**

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Pre-transplant patients require an extensive work-up, which includes multiple tests consultations and patient education. At many large cancer institutions, this work is coordinated by Clinical Nurse Coordinators (CNCs). At Memorial Sloan-Kettering Cancer Center over 400 stem cell transplants are completed annually and the results and documentation of the pre-transplant work-up are found in multiple areas in the electronic medical record; making it challenging and time consuming to locate information. Due to the complex evaluation of these patients, the need for an electronic tool, which summarizes the entirety of the pre-transplant work-up, is essential to provide safe coordination of care. The purpose of this initiative was to create a 1-page specialized view containing all pre-transplant patient information. This page will be found under the clinical summary tab of the current electronic health record. A clinical summary tab is a snapshot of pertinent patient data. To create this tool a task force, which includes Clinical Nurse Coordinators, the nurse manager, Clinical Nurse Specialist, Health Informatics and Nursing Informatics was formed. The Plan Do Study Act quality improvement approach was used in this project. CNCs identified a list of patient information required for pre-transplant work-up and informatics team designed a template of the tool. Once completed, the clinical summary tab was implemented in September 2018. Prior to going live, a baseline evaluation revealed CNCs used 5 different locations in the medical record to locate patient information. Furthermore, the survey also showed majority of the CNCs utilized at least 1 to 1.5 hours of their 10-hour workday to find patient information. When covering a CNC, majority reported somewhat difficult to locate patient information (87.5%) and a few reported it was easy (12.5%). A post-survey evaluating the effect of clinical summary tab to the length of time, consistency of method used and CNCs' satisfaction. This survey is scheduled to be completed in December 2018. Final presentation will include development logistics, content of the summary tab and pre/post metrics. A solid partnership with Health Informatics and Nursing Informatics was essential in this project. This relationship allowed the development of an electronic tool that is easily

accessible to clinicians. Truly, nurses have an essential role in driving the development of technology to improve the efficiency and safety of their practice.

### **ANALYSIS OF INTERDEPARTMENTAL HANDOFFS IN AN AMBULATORY COMPREHENSIVE CANCER CENTER**

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Oncology patient handoffs between areas of care represent critical junctures for patient safety with this high acuity, at risk-patient population. The Joint Commission in 2017 identified “Inadequate communication is a contributing factor in adverse events.” In a large ambulatory comprehensive cancer center 62,580 exams are performed in the Imaging Center annually. Frequently these patients are sent to evaluate urgent/emergent symptoms (i.e.: stat abdominal CT to r/o perforation). This involves several handoffs with multiple departments in the care coordination from initial orders to imaging to clinical team evaluation and possible transport to hospital for inpatient admission. Without standardization of handoffs there is the potential for incomplete, omitted or misinformation at each juncture along the care continuum, thus placing patient safety in jeopardy. The purpose was to standardize handoffs between departments in an ambulatory Comprehensive Cancer Center. Collaborative multi-disciplinary team from clinical and Quality departments assessed current handoff procedures via interviews and observations. A literature review of best practices was completed. From this a pilot was created of a standardized tool and process with Solid Tumor Clinics and CT Imaging Department. These elements were integral to the tool and process design; “I-PASS, Illness severity, Patient summary, Action list, Situation awareness and contingency plans, Synthesis by receiver. The PDCA model is guiding the pilot implementation and evaluation and changes will be incorporated as areas of need are identified. With the increased acuity of oncology patients in ambulatory comprehensive cancer centers, safe standardized handoffs are essential to assure best care across the trajectory of diagnosis to intervention, often involving transfers between departments. The ability to rely on an individual’s specific practices leaves gaps in critical information sharing and contributes to the occurrence of adverse events. Attention to handoffs is not a new priority and requires continual re-evaluation with the changing nature of ambulatory comprehensive cancer centers

clinical care and the increased acuity of oncology patients. To support interdepartmental nursing best practices, and to ultimately provide for the best patient outcomes, handoffs should each year have metrics for analysis that drive the highest possible level of communication and care for patients.

### **STREAMLINE THE CHEMO! IMPROVING PATIENT AND STAFF SATISFACTION**

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Chemotherapy administrative delays result in increased length of stay and decreased patient satisfaction. One oncology unit collected data from January 2017 to February 2018 (n = 78 patients), tracking time of patient admission to time of first chemotherapy/biotherapy administration. Average time was 4 hours, with a maximum time of 7.5 hours. The significant variation in time indicated inconsistencies in the current process. The purpose of this project was to examine root causes of chemotherapy administrative delays on a 26-bed inpatient oncology unit. Specific variables examined included: admission time, time of chemotherapy/biotherapy orders received, nurse verification of orders, pharmacy preparation, nursing administration considerations and procedural delays. An interdisciplinary oncology team was formed including staff nurses, the oncology pharmacist, physicians, and nurse leaders. A process improvement event was held to examine the current process, collect data and review outcomes to create solutions. Fishbone diagrams and process flow maps were used to examine delays. Several variables were identified that impacted the timeliness of chemotherapy administration. Whether orders were present at time of admission, and nursing busyness slowed the verification of orders were identified as the largest delays in administration. For the safety and satisfaction of the patients and the staff, structured timelines for direct admits were implemented. Nurse navigators now assist in coordination of central line placement and other procedures as needed prior to admission. Providers see patients in the office the day before admission and write or electronically enter orders promptly after the patient is seen or communicate admission delays to the inpatient team. The nursing staff prioritizes these admissions, assessing patency of the central line, blood counts, height/weight, and lab results to accurately verify chemotherapy orders. This allows pharmacy to work on verifying and

mixing the medication sooner. As a result, admission to chemotherapy start time is now 4 hours or less. A lack of process improvement literature exists around timeliness of chemotherapy administration. Other inpatient oncology units can use the strategies employed by this inpatient oncology unit, to closely examine chemotherapy administrative delays specific to their organizations.

### **UTILIZING TECHNOLOGY TO PROVIDE AN ONCOLOGY NURSE NAVIGATOR SUPPORTED PATIENT ENGAGEMENT SURVIVORSHIP PROGRAM**

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As more patients survive cancer, we are challenged with the need to provide high-quality, patient-centered, ongoing care and support. Transitioning from active cancer treatment to the post-treatment phase can be stressful. Survivors are at risk for being lost during this transition and missing out on the close follow-up that they need. At our Comprehensive Cancer Center, a collaborative group developed an electronic Cancer Survivorship Patient Engagement Toolkit (CaS-PET) that allowed direct engagement with an oncology nurse navigator (ONN) in order to assist cancer survivors to manage and improve their health. The purpose of the study was to develop and pilot-test the electronic CaS-PET, as well as conduct a feasibility study using a small sample. The goals of CaS-PET are to engage patients in their cancer survivorship care, foster communication between the ONN and patients, and ultimately improve quality of survivorship care by offering online support beyond cancer treatment. 30 cancer survivors who were within 6 months of their end of curative treatment participated in this single-group, pre-post design, prospective pilot study. Data were collected at baseline and at the end of the 3 month intervention using an online survey. CaS-PET was developed based on the Self-Efficacy Theory and included patient portal (PP) e-messages, online educational resources, and a discussion board. ONN's identified eligible participants, developed and delivered survivorship care plans and engaged with

patients based on PP and discussion board communications. All participants completed the baseline survey. Data were analyzed using descriptive statistics. Clinically significant and frequently experienced treatment-related symptoms were reported such as lack of energy (77%), pain (63%), and fear of recurrence (50%). Multiple interactions with participants led to ONN's providing further resources as well as referrals to support specialists including nutritionist and mental health services. Preliminary follow-up survey and focus group evaluations of the CaS-PET experience have been positive for both the patients and ONN. ONN's were instrumental in empowering survivors in setting realistic goals and promotion of healthy lifestyle. The baseline assessment presented impactful findings that demonstrate the benefit of expanding this program to address common concerns during post-treatment survivorship and beyond. Moving forward, online education modules are being developed based on the physical/mental cancer symptoms data.

### **STOP THE BEEPING: DECREASING CLINICALLY INSIGNIFICANT IV PUMP AIR-IN-LINE ALARMS WITH AN ANTI-SIPHON VALVE**

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Administering continuous 24-hour chemotherapy infusions are common in certain oncology treatment regimens such as EPOCH. Combination chemotherapy, involving doxorubicin-etoposide-vincristine, have notoriously triggered frequent and clinically insignificant air-in-line (AIL) alarms. These nuisance AIL alarms are due to the naturally bubbly composition of the drug, causing small air bubbles throughout the duration of the infusion. During a 24-hour infusion, both patients and nursing staff can be negatively affected by nuisance AIL alarms, which may cause prolonged infusion times, disrupt patient sleep, increase nursing workflow and increase alarm fatigue. There were few recommendations from existing primary literature to mitigate this issue. Per the Oncology Nursing Society community discussion boards, some organizations have instituted an anti-siphon valve to pressurize the infusion, decreasing air bubbles in the line and ultimately AIL alarms. The purpose was

to decrease clinically insignificant AIL alarms with “bubbly” chemotherapy infusions to enhance nursing workflow, patient experience and drug delivery. An anti-siphon valve was found to be available, which would be implemented at the end of the primary tubing and connected to the closed system transfer device. Collaborating with pharmacy leaders, the anti-siphon valve was trialed on a hematology inpatient unit, within a large comprehensive cancer center, frequently administering EPOCH regimen infusions. Focused nursing education was provided to the unit. There were positive responses from nursing staff regarding the use of anti-siphon valves with continuous EPOCH regimen infusions. Nurses found that the valve decreased nuisance AIL alarms, helping to decrease alarm fatigue. After reviewing preliminary data, a 91.7% decrease in AILs were found when comparing 4 weeks of infusion data. The use of the anti-siphon valve proved beneficial, but through the trial, it was found that the valve disabled the ability to check for blood return during the infusion through the primary line. This issue was mitigated with the addition of a dual lumen extension device. This device allowed one lumen to connect to the primary chemotherapy line with the anti-siphon valve, leaving the other free to check for blood return. Use of an anti-siphon valve has enhanced nursing workflow and dramatically decreased clinically insignificant AIL alarms. The positive outcomes of this trial could be applied to other infusions known for frequent clinically insignificant AIL alarms, such as etoposide.

### THE SIGNIFICANCE OF A LEUKEMIA AND LYMPHOMA NURSE NAVIGATOR

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VCU Health identified a need in the unique and acute population of the patients who have Leukemia and Lymphoma. The Leukemia and Lymphoma Nurse Navigator (LLNN) position was created to help close the gaps in their care. The LLNN was developed to meet the unique needs of the Leukemia and Lymphoma patients by: increasing communication and transition of patient care from inpatient and outpatient; decreasing the length of stay (LOS) to reflect the national standard set by Centers for Medicare and Medicaid Services (CMS), of 17 days for inductions, and better align with the standard associated with other National Cancer Institute (NCI) centers; assist in transitioning inpatient chemotherapy protocols to the outpatient setting safely; and most importantly giving the patient continuity throughout their journey crossing the health care continuum. The

LLNN attends daily inpatient rounds to collaborate with the team additionally meeting all new patients both inpatient and outpatient. The LLNN works with the team to begin transitioning patients to the clinic during their induction. This move shortened the inpatient LOS to better align with benchmark metrics set by CMS. Stable patients were then able to have count recovery at home with clinic support. Lastly, moved three inpatient chemotherapy regimens to be administered outpatient. Preliminary feedback from patients has shown to be positive. Formal surveys to measure patient satisfaction as well as assessment of readmission rates for this specific population will provide additional support of the process. Successfully decreasing inpatient LOS has had a large impact on the outpatient clinic volume. The increased volume has affected the lab and treatment room, increasing transfusions and chemotherapy which were previously administered inpatient. Additional staff education had to be performed to orient staff to the new regimens as well as inform them of the heightened acuity of the patients that would be presenting during their nadir period. New patient education was developed in neutropenia in the outpatient setting. The implementation of the LLNN has improved the communication between the inpatient and outpatient units. It has increased patient satisfaction and the addition of a second LLNN will be beneficial in meeting the needs of the growing number of patients. LOS has successfully decreased in the Acute Leukemia patient with induction chemotherapy.

### EMPOWERING THE NEXT GENERATION OF NURSES IN A COMMUNITY ONCOLOGY PRACTICE SETTING

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Currently there are 1.7 million new diagnoses of cancer yearly. Student nurse clinical education has taken place primarily in the hospital even as care has recently shifted to the ambulatory setting. A dedicated education unit (DEU) and nurse residency program was established in 2013 at the main campus academic center. This was established in part as a response to the Robert Wood Johnson Foundation's and the Institute of Medicine's calls for initiatives to offset the anticipated nursing shortage and to protect the academic center from anticipated retirements. The success of the program at the academic center led to a pilot clinical rotation in



2018 at a partner community ambulatory cancer center. The purpose was to pilot a senior nursing student clinical rotation at a community ambulatory cancer center. Nursing students spent 8 weeks with assigned preceptors in outpatient infusion suite and medical oncology clinic. Interdisciplinary modules built into the DEU included: shadowing a research coordinator, pharmacist, genetic counselor, and a visit to the proton therapy unit. Weekly “lunch and learn” seminars designed by oncology staff experts were offered on bone marrow transplant, chemotherapy, and self-care. Students reported having gained invaluable insights to oncology care. One student completed a senior practicum at the community site and is planning to apply for a resident position. Staff precepting students reported a renewed commitment to clinical practice and provided useful feedback for future clinical rotations. New nurses embarking on careers in other specialties credited this clinical rotation with giving them the ability and confidence to identify the unique needs of the oncology patient. Recruitment and retention of oncology nurses is an essential component in building the future of oncology nursing. Prior to the rotation, students had scant exposure to oncology in their nursing courses and clinical experiences. Academic clinical healthcare settings have reported success in hosting students for clinical rotations from universities, now a precedent is set for implementing this important DEU in the community oncology setting. Building the capacity to educate students and having the institutional infrastructure to educate preceptors, offer multidisciplinary lectures drawing from staff expertise, and supporting academic learning for students is a valuable asset for oncology care at the community care clinic.

#### **IMPACT OF GENETIC PATIENT NAVIGATION TO FACILITATE HEREDITARY MUTATION CARRIERS COMPLY WITH NCCN MANAGEMENT GUIDELINES AND TO ENABLE HEALTHY BEHAVIORS (CANCER PREVENTION RESEARCH INSTITUTE OF TEXAS PP160110)**

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Hereditary Breast and Ovarian Cancer Syndrome (HBOC)/Lynch Syndrome (LS) are the two most common inherited cancer predisposition syndromes. Individuals carrying mutations in associated genes have

some of the highest cancer incidence of any known group. UT Southwestern's (UTSW) multisite cancer genetics program has identified over 3400 mutation carriers in its history. The National Comprehensive Cancer Network® (NCCN) has established cancer risk management guidelines for mutation-positive patients and for cancer survivorship. Patient navigation has been shown to reduce barriers to care which often prevent compliance to recommended guidelines. Often, non-genetic healthcare providers (HCPs) have low genetic health literacy, which may also provide barriers to care. 32% of our patient population is uninsured/underserved. Our program implemented a genetic patient navigator (GPN) to provide assistance to increase patient compliance and healthy lifestyle promotion with focus on underserved population. We describe here the utilization of a GPN on surveillance compliance and lifestyle practices among underserved/uninsured and insured HBOC and LS mutation carriers within the UTSW clinics. We also provided professional education services to improve genetic health literacy among non-genetic HCPs. The GPN contacted HBOC/LS-probands to ascertain follow-up information regarding cancer risk reduction, and evaluation of lifestyle factors/ social support barriers. The GPN educated patients for their particular risks and facilitated specialist referrals, provided lifestyle factor counseling, and made referrals to a survivorship program. The GPN recorded identified at-risk relatives per proband and provided education to promote testing. The GPN participated in provider outreach on hereditary patient management. Data was tracked using the CancerGene Connect™ navigation tool and Excel database. In 24 months, the GPN completed 62 public education services, with 578 people educated. 436 people were navigated to 431 services across 24 counties. Survivorship services were scheduled/ received by 51 people. 92 people improved their health behaviors and 64 received a physician referral. A total of 2,357 professionals were educated via 16 professional outreach events in 25 counties. The cascade testing ratio for family members improved from 1.0 to 2.3. The introduction of a genetic navigator intervention has improved the likelihood of increasing compliance. Heightened genetic health literacy of HCPs can lead to increased patient compliance through targeted education.

#### **IMMEDIATE CARE CENTER: AN URGENT CARE AMBULATORY CLINIC MODEL FOR THE ONCOLOGY PATIENT**

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This Midwest academic cancer center is experiencing a persistent increase in patient volume necessitating exploration of alternative levels of care. In April 2015, an oncology emergency department (ED) was opened to ensure oncology patients would benefit from the expertise of oncology registered nurses (RNs), oncology advanced practice providers (APPs), and physicians. From that time, patient volumes have remained high in the oncology ED and all inpatient units as well as outpatient oncology clinics across all disease groups. In order to augment traditional care settings to enhance patient care, an oncology APP/RN urgent care model acute care department was established. The Immediate Care Center (ICC), an eight bed ambulatory unit in close proximity to the ED, opened in April 2018. The goal of the ICC is to improve patient access to timely care for symptom management issues that do not meet the acuity of an ED encounter. Traditionally, patients who have required this level of symptom management have been added on to outpatient clinics or seen in the ED. The ICC has decompressed the ED, allowed outpatient clinics to see regularly scheduled patients, and helped reduce unnecessary hospital admissions. Established oncology patients are referred to the ICC by their primary team or oncology telephone triage RNs. Patients are directed to the ICC where they are immediately evaluated by an oncology APP. A plan of care is established and carried out with diagnostic testing available. Treatments provided include hydration, blood products, intravenous antibiotics, anti-emetics, pain control, and wound management for post-operative complications. Oncology specific interventions and individualized patient care have allowed 74.7 percent of the 774 ICC visits April through September 2019 to discharge directly home. Patient satisfaction scores for fiscal year 2018 (94.4) and July 2019 (100) are near or exceed the organizational benchmark target of 96.5. Expansion of oncology services into non-traditional settings provides optimal care for patients. Benefits include exceptional patient experience, enhanced throughput in clinics, decreased admissions, and reduction of ED encounters. Nurses at all levels are able to provide care at the top of their scope of practice in a unique, innovative setting. The ICC, currently open sixteen hours per day, will be expanding to a twenty-four-hour schedule in 2019.

## **STANDARDIZING THE ADMINISTRATION OF AN ONCOLYTIC VIRUS USING AN INTRAPERITONEAL CATHETER IN THE OUTPATIENT SETTING**

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Recent FDA approval of an oncolytic virus (OV) for intralesional injections in melanoma, suggests that OV therapy may become more widely utilized in oncology. At this NCI-designated comprehensive cancer center, interest in expanding this therapy for peritoneal carcinomatosis led to the implementation of a Phase I clinical trial of an OV administered via intraperitoneal (IP) catheter. Potential viral transmission is a unique biosafety concern requiring the development of a standard for the safe administration via this route. We will describe: (1) the development of a policy and procedure for safe administration of an OV via IP catheter (implanted port or indwelling catheter); (2) educational needs of staff and patients and; (3) nursing considerations with IP OV administration. A multi-disciplinary team was assembled including nursing education, leadership, infusion nurses, infection control (ID), interventional radiology (IR), clinical trials nursing and pharmacy. Limited literature resulted in the need to use alternative data sources including interviews with other major cancer centers, IR and the manufacturer of external IP catheter. The team created a policy, patient workflow, and educational materials on IP OV treatment. An alert in the electronic record was developed for interdepartmental communication of infection control precautions. A label was created for the IP catheter dressing to visually alert staff that it was for OV infusion only. Training of nursing and ancillary staff focused on administration technique, catheter care and isolation precautions. Patients received education regarding OV therapy precautions and catheter maintenance. Three patients were successfully treated in this phase I setting with no adverse events related to administration technique, leakage, catheter dislodgement or occlusion. The creation of a policy and thorough educational program reduced staff apprehension toward

OV administration and maintained a safe patient care environment. This experience is applicable in any nursing setting administering OV therapy via IP catheter. Nursing was pivotal in ensuring safety of staff and patients in receiving a novel mode of OV therapy. Multi-disciplinary efforts resulted in institutional policy development with successful IP administration of OV, without incidence of iatrogenic infection in an outpatient infusion setting.

### **USE CHLORHEXIDINE GLUCONATE (CHG) TO BE GERM FREE: REDUCING CENTRAL LINE ASSOCIATED BLOOD STREAM INFECTIONS (CLABSIs) THROUGH A PATIENT EDUCATION PROGRAM**

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Oncology patients are at high risk for infections because of chemotherapy-induced neutropenia. Patients who develop a central line associated blood stream infections (CLABSI) have prolonged lengths-of-stay (LOS) which cause sepsis, interruptions in their treatment plan, and incur costs. The Centers for Medicaid and Medicaid Services 2008 discontinued hospital reimbursement for nosocomial infections. The average cost of a CLABSI at NewYork–Presbyterian Hospital (NYPH) is forty thousand dollars. Our goal is to reduce CLASBI rates by 25% on a 19-bed Medical Oncology/Bone Marrow Transplant Unit through a patient education program. Patients received a pre-test and post-test to evaluate central line care competency. Twenty patients completed the pre-test survey over three months. Results showed knowledge deficits pertaining to central line care. CLABSI nursing champions educated nursing staff on CLABSI prevention and central line care. Patients with central lines received a Red Tote Bag, which included Purell, Anchor Dry shower covers, CHG wipes, oral care swabs, education pamphlets and curo caps. Nurses educated patients on the contents of the Red Tote Bag and appropriate line care. The Red Tote Bag initiative was implemented in June 2018. Pre-test results showed that 50% of patients were not competent in line care. Post-survey results

revealed that patients were 100% competent in caring for their central line. During 2017 year, there were six patients with CLABSI on the unit. There has been one CLABSI since implementation of the Red Tote Bag in September 2018 due to patient's non-compliance. Results suggest that educating patients on how to care for their central lines can decrease, if not eradicate CLABSIs completely. The partnership between oncology nurses and patients is critical in preventing CLABSIs. We plan to continue education including central line monitoring, hand hygiene instruction and accurate use of CHG bathing wipes. Monthly audits will be conducted to ensure that all patients in need of central line education received it. Oncology nurses, have a responsibility to provide patients with the knowledge they need to be active participants in their medical care. It is together that we can combat CLABSI's and ensure patient safety. After conducting a literature review, we developed an innovative approach to enhance education and promote best practices for CLABSI reduction. There are plans for enterprise wide adoption of this program.

### **PREVENTION OF CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS IN THE ONCOLOGY POPULATION**

Samantha Thomas, BSN, RN, OCN®, UCLA Medical Center, Santa Monica, CA; Patricia Jakel, RN, MN, AOCN®, UCLA Medical Center, Santa Monica, CA; Jason Kulangara, MBA, MSN, RN, UCLA Medical Center, Santa Monica, CA; Franz Cordero, BSN, RN, OCN®, UCLA Santa Monica Medical Center, Santa Monica, CA Central venous catheter bloodstream infections are linked to increased morbidity and mortality, therefore prevention with effective methods are necessary to decrease healthcare costs and complications. Medication impregnated dressing products reduce the incidence of catheter-related blood stream infection relative to all other dressing types. CHG impregnated dressings had a significant reduction in the incidence of CLABSI. The oncology unit is a 26 bed solid oncology inpatient unit where patients are admitted for chemotherapy, symptom management, oncology emergencies, and neutropenic surveillance. The unit has Port-a-Caths (PAC), Peripherally Inserted Central Catheters (PICC), and hemodialysis/plasmapheresis central lines. A CHG impregnated dressing is not currently a standard in the central line bundle. The unit had 13 CLABSI cases from July 2016 to July 2017 and the CLABSI rate was above national benchmark expectations in 8 out 13 months. The nursing staff has a direct and critical role in preventing CLABSI.

The purpose of the project is to decrease the number of CLABSI in the oncology population in order to reduce complications and hospital length of stay based on evidenced based practice. A CHG-impregnated dressing trial was performed on the oncology unit on all central lines from August 2017–December 2017. Education provided to the unit nursing staff on the placement and management of a CHG-impregnated dressing. The oncology unit had zero CLABSI cases indicating a 100% decrease during the CHG-impregnated dressing trial in which the oncology unit outperformed the national benchmark. The study noted that use of a CHG-impregnated dressings included in a standardized central line bundle paired with nurse education significantly decreased central line infections in the oncology unit. Central line-associated bloodstream infection (CLABSI) can be preventable. In the oncology population, the use of a nursing-centered central line bundle with the addition of the CHG-impregnated dressing can decrease central line-associated bloodstream infections, and therefore decrease morbidity, mortality, and associated impact on the healthcare facility. The increase in the unit's CLABSI rates inspired nursing staff drive for a change of clinical practice in order to provide quality care for the oncology patient's benefit. The success of the trial led to a system wide implementation of a CHG-impregnated dressing in the central line bundle.

### **DEVELOPING AN INCENTIVE-BASED WALKING PROGRAM TO PROMOTE EXERCISE IN THE STEM CELL TRANSPLANT PATIENT POPULATION**

Gisele Tlusty, MSN, RN, Nebraska Medicine, Omaha, NE Walking, as a form of mild exercise, has been demonstrated in the literature to have many benefits including, but not limited to, prevention of deep vein thrombosis, pneumonia, depression, and fatigue. Further research has shown that patients who remain active during stem cell transplant treatment recover faster and are discharged sooner leading to improved outcomes. The Special Care Unit (SCU) at Buffett Cancer Center was conceptualized with long hallways to encourage patients to exercise while they are hospitalized for stem cell transplants. Barriers to participation in walking include the taxing nature of the transplant treatment regimen along with the unpleasant side effects experienced including nausea, vomiting, and fatigue. SCU staff identified an opportunity to improve patients' motivation to walk by developing an incentive-based program. Nursing

collaborated with physical therapy to develop the program. Physical therapy used a wheel to measure the distance around the unit. Nursing developed a form for patients to track laps and convert them into miles. A SCU nurse contacted local race directors and obtained race medal donations for the following distances: 5 kilometers (30 laps), half marathon (130 laps), and marathon (260 laps). Staff educated patients about the walking program at admission and encouraged them to track their progress, awarding the corresponding medal as participants completed each distance. The walking program has seen tremendous success since it was established in May of 2018. In the first four months of the program, staff awarded a total of 81 medals: 56 5K, 19 half marathon, and 7 marathon medals. Patients have been observed interacting with fellow patients talking about their progress in the walking program and encouraging others to participate as well. In addition, the staff have enjoyed the labors of the walking program as it allows them to celebrate milestones with patients that are not related to their cancer diagnosis. Benefits of the program extends beyond the physical realm. Patients are now more likely to get out of their rooms and interact with other patients, providing support to one another towards their walking goals and creating a sense of community that is felt throughout the unit.

### **THE DEVELOPMENT OF A TRIAGE DECISION TREE FOR TREATMENT LOCATION RECOMMENDATIONS FOR PATIENTS AT AN OUTPATIENT RADIATION CENTER**

Jennifer Wieworka, MS, RN, AGCNS-BC, OCN®, Johns Hopkins Hospital, Baltimore, MD; Jacqueline Tilley, BSN, RN, Johns Hopkins Hospital, Baltimore, MD

The radiation oncology clinic at this Comprehensive Cancer Center conducted a staff safety assessment as part of the hospital's Comprehensive Unit-based Safety Program (CUSP). Staff identified barriers to access regarding getting patients into the Oncology Urgent Care Clinic (OUCC) as an important safety concern. The OUCC is an appointment-only clinic for diagnostic support, intervention, and symptom management that provides more intensive resources than are available in the radiation oncology clinic. Triageing appropriate patients to OUCC is important because if OUCC is not able to accommodate the patient, we refer them to the ED. In our hospital, oncology patients referred to the ED get admitted 80% of the time; however, admission occurs only 20% of the time from OUCC. Our purpose is to improve timely access to care for radiation oncology patients requiring

urgent intervention, with a secondary goal of reducing hospitalizations for issues that OUCC can manage outpatient. The rationale for the algorithm was to increase appropriate first line referral, dually, reducing time to treatment and inappropriate OUCC referrals. Working with OUCC staff, our CUSP team developed the intervention of a decision-making algorithm to assist our providers in making appropriate, timely referrals. The decision-making algorithm guides practitioners to referral endpoints including referral to the OUCC, referral to the ED, intervention within the radiation oncology clinic, activation of the hospital's internal emergency response code team, or referral to an outside urgent care clinic. We evaluated success of our intervention through urgent care providers and radiation oncology providers reviewing and accepting the use of the decision-making algorithm within the radiation oncology department. The creation of the decision-making algorithm has several implications for nursing practice. The ability to clarify appropriate referral location will save nurses time and get patients access to timely, appropriate care. Screening and treatments for cancer are becoming more advanced and targeted, thus improving patient survival rates. With patients living longer, they are developing co-morbidities, which can lead to declining patient conditions in the outpatient setting. Clinicians need to be innovative in their preparedness to handle the urgent care issues that arise in the outpatient setting. Developing a decision-making algorithm to streamline and improve access for patients to receive urgent or emergent care can lead to positive patient outcomes.

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## GENERAL

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### **ELIMINATING CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS IN THE SURGICAL ONCOLOGY POPULATION: AN INPATIENT UNIT'S APPROACH TO REMAINING CLABSI-FREE FOR ONE YEAR AND BEYOND**

**Kelsey Bergstedt, BSN, RN, CMSRN, Duke Raleigh Hospital, Raleigh, NC**

A Surgical Oncology unit in a community hospital experienced 4 central line-associated bloodstream infections (CLABSI) between February 2016 and March 2017. The affected patients were receiving total parental nutrition (TPN) in 3 of the 4 cases. This quality improvement project aimed to create and promote interventions to reduce drifts in nursing practice

related to central line care that potentially lead to CLABSI in the surgical oncology population. Multiple practice changes were implemented including daily chart audits by clinical team lead, optimization of electronic flowsheets for consistent documentation, creating "TPN Bundles" so staff have all supplies needed for a sterile cap change when hanging a new TPN bag, hand gel at bedside for patients to practice their own hand hygiene, two staff members at bedside for all central line dressing changes to promote adherence to sterile technique, targeted new staff education including simulation of dressing changes and port access on a mannequin, and in-room staff quick reference cards. This poster will contain charts visually representing the steady decline in missed cap, dressing, and needle changes over a 12-month time period. Prior to initiating this project, pre-intervention data shows 32 central line caps, 5 central line dressings, and 2 port needles were missed out of 283 central line days in one month. A steady decline in missed caps, dressings, and needles were noted over the next six months as the action plan was carried out. At sixth months into the project, missed caps were reduced to 7 in one month, with zero missed dressing and needle changes out of 303 central line days. At twelve months, missed caps were at 6 in one month, with zero missed dressing and needle changes out of 241 central line days. The unit has implemented creative and sustainable interventions that have successfully reduced the number of missed central line cap, dressing, and needle changes leading to zero CLABSI during the 12-month timeframe of this project.

### **STRATEGIES TO IMPROVE THE ONCOLOGY TELEPHONE TRIAGE PROCESS**

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Nurses play a vital role in the evaluation and throughput of patients and families calling the doctor's office with medical concerns or questions. However, nurses working at cancer centers with numerous providers, multiple locations and varying workflows may be challenged to provide efficient, clear and consistent phone communication. These challenges may contribute to disjointed and inefficient care and adversely



affect quality and patient satisfaction. The purpose of this project was to improve and standardize the telephone triage process for patients calling a large, urban comprehensive cancer center during normal business hours. The impetus for this project was participation in the Centers for Medicare and Medicaid Oncology Care Model Program, which promotes improved care coordination and availability to clinicians with access to a patient's medical records. Interventions for this multidimensional project were: application of plain language and health literacy principles to protocols from *Telephone Triage for Oncology Nursing second edition* (with permission from the Oncology Nursing Society), creation of an electronic health record (EHR) telephone documentation note using the revised triage protocols, hiring and training of dedicated call center nurses, redesign of the cancer center's automated phone tree, staff education and reorganization of inter-professional communication workflows. Initial success of this project was measured by improvements in patient satisfaction scores regarding medical questions being answered the same day during normal business hours, median time between patients' initial contact with the clinical secretary and the phone triage nurses' response and median time to completion of patient calls. Integrating plain language into oncology nurse telephone triage protocols within an EHR note is a novel approach to help provide clear, consistent and efficient communication between nurses and callers. In addition, standardizing the telephone triage workflow and using dedicated call center nurses has the potential to improve patient care and satisfaction. The work and lessons learned from this project may be useful to other cancer centers seeking to promote health literacy, improve existing practices, or institute nurse call centers and/or telephone triage protocols.

#### **QUICK TICKET HOME: IMPLEMENTATION OF ENHANCED RECOVERY AFTER SURGERY**

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Enhanced recovery after surgery (ERAS) is a multimodal, integrated, multidisciplinary approach to care of the surgical patient. ERAS utilizes evidence-based protocols to standardize surgical care, improve outcomes and lower health care costs. ERAS protocols minimize surgical trauma and postoperative pain, reduce complications, improve outcomes, and decrease hospital length of stay. The purpose was

to implement an evidence-based clinical pathway for surgical oncology to improve outcomes in urology oncology procedures. A multidisciplinary team reviewed evidence-based protocols and developed an implementation plan to successfully integrate ERAS into urology oncology nephrectomy and prostatectomy procedures. Before implementing the program, we educated our nurses, doctors, dietitians, physical/occupational therapist, and nose assistance on ERAS elements to give them the practical knowledge necessary to provide quality care. ERAS elements of care include: changing overnight fasting to carbohydrate drinks 2 hours before surgery; minimally invasive approaches instead of large incisions; IV fluid management for individual balance rather than large volumes of fluids; avoidance of or early removal of drains and tubes; early mobilization; and early resumption of food and drinks on the operative day. Implementation of the ERAS protocol began in fall of 2017. Preliminary outcomes metrics indicate a zero 30-day readmission rate and zero emergency department post-operative encounters since Nov 2017. Average length of stay is 2.16 days, down from 3.07 and trends continue downward. Long-term data will be presented. The ERAS program has revolutionized the care of the surgical oncology patient, resulting in shorter length of hospital stay by 30–50% and similar reductions in complications, while readmissions and costs are reduced.

#### **IMPROVING THE RESPONSE TIME IN THE TREATMENT OF ANTICANCER THERAPY INDUCED HYPERSENSITIVITY REACTIONS**

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Accrediting agencies recommend that institutions develop a Standard of Practice (SOP) for the treatment of anticancer therapy induced hypersensitivity reactions. This institution identified a potential opportunity to improve the time it takes to initiate the treatment of hypersensitivity reactions potentially improving patient outcomes. The purpose was to compare “drug to patient” time frames utilizing four different medication and supply dispensing processes. A time trial study was performed to compare four different medication and supply dispensing processes. The processes are described as (a) No Tool Box—nurse obtains necessary drugs individually from an Automated Dispensing Cabinet (ADC) and all necessary supplies to administer those medications from a supply room or work station on wheels (WOW). (b)

ADC Hypersensitivity Drug Trigger—when selecting hypersensitivity in the ADC, hypersensitivity protocol specific medication drawers open automatically and the nurse obtains the supplies needed to administer those drugs from supply room or WOW. (c) ADC Hypersensitivity Tool Box—when selecting hypersensitivity in the ADC, the nurse obtains a tool box containing all hypersensitivity medications, supplies and an algorithm as a reference. (d) Emergency Medication Tool Box—a tackle box that contains medications and supplies needed to respond to emergency situations in a clinic atmosphere. Hypersensitivity designated medications and supplies are a part of the inventory. This box is stored in a locked room or cabinet, not in the ADC. The Emergency Medication Tool Box and ADC Hypersensitivity Tool Box resulted in the best times reported in seconds: (a) No Tool Box: 3.15 minutes. (b) ADC Hypersensitivity Drug Trigger: 2.03 minutes. (c) ADC Hypersensitivity Tool Box: 1.04 minutes. (d) Emergency Medication Tool Box: 1.04 minutes. Oncology nurses will respond to anticancer therapy induced hypersensitivity reactions quickly with the use of hypersensitivity toolboxes that contain appropriate drugs and supplies. The tool box will also include the algorithm that aligns with the SOP. Increased response times may significantly contribute to patient outcomes.

### THE VALUE OF A JUST CULTURE AND ENCOURAGING THE REPORTING OF ALL EVENTS

**Tammy Clarke, MS, RN, OCN®, BMTCN®, Wilmot Cancer Institute, University of Rochester Medical Center, Rochester, NY; Nathaniel Wade, PharmD, MSBA, BCOP, Flatiron Health, New York, NY**

At the Wilmot Cancer Institute (WCI) a monthly Adverse Events Committee meeting is held to discuss all of the medication-related events in the event reporting system. This meeting is for all inpatient, ambulatory and regional locations and includes nurses, nurse managers, pharmacists, outcomes manager and quality and safety officer. In January 2018 the committee noticed a significant increase in the number of Paclitaxel reactions. The manufacturer reports a reaction rate of 2–4% (Taxol Injection Label), but from December 2017–March 2018 the average reaction rate at WCI was 13.5%. It was also noted that the reactions were occurring within the first 10ccs of administration and not just during the first and second dose, as is typical. The purpose of this project was to identify and resolve a new high reaction rate to Paclitaxel. The pharmacist's investigation

into the reactions revealed the following: 100% of the doses had appropriate pre-medications, 86.8% had at least a 30 minute wait time between pre-medications and infusion initiation, drug concentration was within manufacturer's specifications and lot numbers were dispersed fairly evenly. The pharmacist contacted the Paclitaxel manufacturers and colleagues to see if others were experiencing this problem, but there were no other reported similar experiences. The only clinical practice change prior to the start of the increased reactions was the change in the filter. Eventually it was realized that most of the reactions occurred at regional locations, where the drug is compounded and the line primed several hours prior to administration. This is relevant because active drug would sit in the new filter and tubing for much longer than locations where the drug was compounded immediately prior to use. The decision was made to change back to the original filter. In April 2018, the filter was changed back to the original and the Paclitaxel reaction rate immediately decreased back to the expected; and has continued at that normal rate since. The resolution of this issue was a result of great team work, but the persistence of the nurses entering the reactions into the event reporting system led to the problem being identified. This demonstrates the importance of a just culture that encourages its staff to enter events so that system issues can be identified.

### PREVENTION OF CENTRAL LINE-ASSOCIATED BLOOD STREAM INFECTIONS (CLABSI) IN OUTPATIENT ONCOLOGY

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The purpose of this project was to determine outpatient oncology CLABSI rate and implement best practices for prevention. CLABSI rates were elevated among inpatients, particularly on the oncology unit, in 2017. Outpatient oncology nursing staff manipulate more central lines than all inpatient units, averaging 1,200 PICC dressing changes and 15,000–20,000 port accesses per year. The oncology medical director requested that inpatient and outpatient work together to determine CLABSI rates and implement prevention strategies. Outpatient tracking began in November 2017, using the National Healthcare Safety Net (NHSN) guidelines. The monthly review found an average of two CLABSIs per month. To reduce this number, a team of direct care nursing staff met monthly to develop interventions, including: (a) Information:

CLABSI/organisms case review with nurses. (b) Education for nurses: 15 second hub scrub reminders on work stations. Nurse competencies completed: PICC dressing change, central line medication administration, blood draws, needleless connector change, aseptic medication preparation. CLABSI prevention, rates, scrub the hub, and dressing tips. Education for patients: CLABSI education added to EHR. Letter on CLABSI prevention and preventing central line blood draws unless necessary. (c) Implementation: New PICC kits with chlorhexidine gel dressing and items for dressing removal and replacement in one kit. Trial of chlorhexidine/alcohol swab for outpatient central lines: positive response, will implement on all central lines. (d) Monitoring: Hub scrub audits with new nurses; may expand to all nurses. Staff education levels are assessed through audits and competency. CLABSI rates are monitored monthly. CLABSIs should be tracked over a 12-month period to determine the rate. With the increasing rates in inpatient oncology, there were concerns that outpatient infection rates were unknown. Once outpatient tracking began and established CLABSIs were occurring, tracking continued but the team decided to intervene immediately, resulting in a decrease in CLABSI. Outpatient oncology has had no CLABSI for 3 months and inpatient has had a significant decrease in 2018. Oncology nursing staff can use the process of peer review, working together to positively impact CLABSI outcomes. CLABSIs are not routinely monitored in outpatient populations. The inpatient tracking report and NHSN guidelines were adapted for outpatient use to identify positive blood cultures in outpatients with monthly RN review to monitor the CLABSI rate.

### **PUTTING THE ED IN MEDICATION: IMPLEMENTING A NURSE-DRIVEN MEDICATION EDUCATION PROGRAM ON AN INPATIENT HEMATOLOGY/ONCOLOGY UNIT**

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The medication communication domain of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey is an important quality and patient experience metric. Patients who understand

their medications and side effects are more likely to be compliant with their medication plan on discharge. In January 2018, the HCAHPS score for medication communication was 43.8% on a hematology/oncology unit at an academic medical center. The nursing team recognized the need to increase patients' understanding of their medications and side effects. The purpose of the project is to improve medication communication HCAHPS scores by implementing a nurse-driven medication education process, utilizing visual tools for patients. Starting in late March 2018, an assessment of the current practice for providing medication education revealed variability in how education was performed and what tools were utilized. In-services were performed to ensure nurses knew how to access medication education tools, which include a card that lists common medications and their side effects. Additionally, chemotherapy educational materials were placed on the unit for the nurses to utilize when appropriate. On admission, patients receive medication cards and/or chemotherapy education. Nurses highlight the patient's specific medications and utilizing teach-back, ensure the patient understands the medication use and side effects. Education is continually reinforced throughout the hospital stay. On discharge, nurses summarize the home medication plan, focusing on self-administration and side effects. Chart audits and patient interviews are performed weekly to track progress. The 1st quarter 2018 HCAHPS medication domain score was 57.1%. The domain score increased to 70.8% in the 2nd quarter 2018 following implementation of interventions. Patient interviews revealed increased understanding of medication use and side effects. Feedback from patient interviews and current HCAHPS scores are shared with the nurses during huddles to ensure everyone remains focused on the project. The use of educational tools on medication use and side effects can help to increase a patient's understanding and retention of the information. Individualized education ensures that the information is relevant to the patient. Oncology nurses play an essential role in educating their patients on medications in order to ensure patient safety while in the hospital and post-discharge. Work such as this not only improves patient satisfaction, but also aligns with the organizational goal of zero patient harm.

### **BRIDGING GAPS IN ONCOLOGY CARE: UTILIZATION OF AN AFTER HOURS ONCOLOGY CLINIC**

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The objective of this project was to improve clinical and financial outcomes for oncology patients while improving access to care. In response to participation in the Centers for Medicare and Medicaid Services Oncology Care Model, Allegheny Health Network Cancer Institute (AHN CI) opened the first After Hours Oncology Clinic (AHOC) in the region in January, 2017. The focus of this model is to address the complex needs of the oncology population, increasing use of high value services and decreasing unnecessary services. The primary objective of this clinic is to reduce readmissions and unnecessary emergency room visits, improving access to care. Emergency department (ED) visits related to clinic-manageable symptoms and treatment side effects occur often and expose immunocompromised patients to opportunistic infections, increasing readmission rates. Data identified that most of our oncology patient ED visits occurred on weekday evenings, so being available when our patients need us was the first gap bridged. Identified were situations manageable in the AHOC: (a) Chemotherapy/ treatment side effects i.e. gastrointestinal symptoms, dehydration, electrolyte imbalances, (b) Complications of the disease i.e. deep vein thrombosis, rashes, edema, dyspnea, pain, and (c) Febrile neutropenia. Through the triage process, issues not manageable in this clinic are directed to the ED (chest pain, falls, acute bleeding, symptoms that could require advanced scanning techniques for assessment). The clinic has access to laboratory, radiology and ultrasound services and is located within the treatment area at one of the AHN CI's hospitals with access to inpatient services. It is staffed by a provider, an experienced oncology Registered Nurse, and a skilled Medical Assistant. With these skill sets available, patients quickly began to inquire if some treatments could be made available later in the day in support of their work schedules. Options were researched and a specific subset of services joined the availability of urgent care services. These included port flushes, pre-chemo labs, iron infusions, phlebotomies, injections, etc. Another gap was bridged and patient satisfaction was especially impacted. Since the opening of the AHOC, volume has steadily increased. We currently provide care to an average of 20 urgent care patients and 80 scheduled supportive care treatment patients monthly. This clinic model is being established at several other regional sites within the AHN CI, further improving access to care for patients in their communities.

## **ONCOLOGIC SURGICAL SITE INFECTION BUNDLE**

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Cancer Treatment Centers of America® (CTCA) Comprehensive Care and Research Center in Chicago recognized that oncology patients have a higher risk for delayed wound healing and surgical site infections due to the physiological and psychological stress induced through undergoing cancer treatments. "The risk of SSI is elevated in surgical cancer patients (3%–15%) compared with noncancer patients (3%)". The National Healthcare Safety Network reports national standardized infection ratios (SIR) and CTCA Chicago has been below the national benchmark for colon and hysterectomy surgeries for the last few years. Despite our low reported infection ratios, CTCA Chicago developed a bundle and looked at all infections, including superficial which are excluded from the national SIR. Our project goal was to decrease the rate of surgical site infections below 8.5 for colon and 3.5 for hysterectomy ( $\# \text{infections} = \text{numerator and } \# \text{surgeries} = \text{denominator} \times 100$ ). A multidisciplinary team of nurses, physicians and pharmacists collaborated to develop and implement a surgical site infection bundle. The bundle consisted of pre-operative, peri-operative and post-operative components. The team looked to the research and developed a bundle that included evidence-based interventions such as chlorhexidine pre-operatively and post-operatively, patient education, a surgical checklist, a fascial wound protector, a dedicated closure tray, limiting operating room traffic, maintenance of normothermia, euglycemia and supplemental oxygen. Also included was antibiotic stewardship and removal of the surgical dressing within 48 hours post-operatively. The Plan, Do, Study, Act (PDSA) cycle was followed and a tracking system was developed to consistently audit bundle compliance long term. During the first three months post intervention, zero infections were experienced. The fourth month, four superficial infections occurred. Analysis of the cases noted a decrease in bundle compliance to 84%. With this knowledge, the team re-convened and implemented a plan to increase bundle compliance to >90%. Post-implementation bundle compliance increased steadily to 93% and no further infections were experienced for another three months. This project is ongoing and will continue to

help oncology patients undergoing abdominal hysterectomy or colon surgery to have the best outcomes possible. Moving forward, compliance auditing will continue, and the bundle will be expanded to include other surgeries. Nursing leaders can utilize a surgical site infection bundle, such as ours, to decrease their surgical site infections.

## **NO YOU CAN'T COME BETWEEN 10 AND 2: INFUSION SCHEDULING AND WORKFLOW IMPROVEMENT WITH THE USE OF COMPUTER SIMULATION AND LEAN MANAGEMENT**

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Staff in a 43 chair/bed infusion unit, identified ongoing challenges to meet patient demand. This was demonstrated by staff overtime, patient wait times, and unpredictable seating times. Peaks and valleys were witnessed with significant predictable patient delays at certain times of the day. Also reviewed was order quality, infusion duration accuracy and use of overbooking appointments. Nurse engagement scores related to having sufficient time to provide the best care for patients was an area of concern. The purpose of this project was to improve infusion workflow utilizing an hour based template; where daily demand is leveled throughout hours of operation. Considerations included: labs, provider appointments, and pharmacy capacity. The overall improvements meet the volume of demand, while providing high quality care and reducing patient wait times. An interdisciplinary team approach was used in development of template and workflow process. Process mapping and computer simulation design provided insight into existing bottlenecks and provided opportunities to evaluate capacity and improvement. Data analysis of patient population by duration, drug type, and acuity were utilized in development of patient scheduling template. The template was designed with a balanced workload (seven starts per 30 minutes) taking pharmacy capacity, along with patient lab and clinic appointment needs into consideration. Predetermined times for those patients not seeing the provider on the same day as infusion were implemented.

Injection only patients were scheduled into the intake area. Three infusion chairs were left unscheduled to assist with unpredictable patient needs. Nursing staff schedule changes (more 10 hour shifts) were implemented allowing for greater coverage early and later in the day. Practice guidance information was utilized to improve consistency with scheduling. After implementation of the template and practice guidance, there was a reduction in wait time. A template modification improved scheduling capacity. A balanced workload for the infusion center and pharmacy, with predictable patient demands has reduced wait times for patients. Nursing staff have noted improved utilization throughout their shifts. The use of computer simulation and lean management can provide data to improve the workflow of an infusion center. Further practice guidance implementation is needed to improve inputs into the system and align uniform execution. Continued audits to analyze the process is necessary as patient volume and treatments change.

## **THE SWITCH FROM REUSABLE TO DISPOSABLE ELECTROCARDIOGRAPHIC LEADS IN THE INPATIENT ONCOLOGY SETTING: AN EVIDENCE-BASED PRACTICE PROJECT**

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Healthcare Associated Infections (HAI) pose a major threat to oncology patients, increasing the risk of morbidity and mortality. Infection control practices help reduce this risk, however, patient care items and environmental surfaces can remain contaminated with latent bacteria for weeks to months at a time. Current literature suggests reusable electrocardiographic (EKG) leads could be one of many high-risk fomites, as they are not always cleaned adequately between patients. In multisite studies, reusable EKG leads have shown high rates of bacterial contamination and were associated with *Clostridium difficile* (*C. diff*) transmission. Utilizing disposable EKG leads in the inpatient oncology setting was hypothesized to reduce HAIs, based on current evidence. This project sought to answer: In the ICU and oncology inpatient telemetry units, did the conversion from reusable EKG leads to disposable EKG leads result in decreased HAIs over 6 months? Disposable EKG leads were placed on



the patient upon admission and utilized throughout transitions of care. Leads were replaced every 14 days per manufacturer recommendation. Retrospective data from Infection Control was evaluated to determine if disposable EKG leads resulted in a reduction of *C. diff* infection. Information from the purchasing department was also evaluated to determine cost-effectiveness. *C. diff* cases decreased by 50% (6 cases vs. 3 cases) in the ICU and inpatient telemetry units with the implementation of disposable EKG leads. While HAI risk reduction is a multi-factorial process, converting to disposable EKG leads may have contributed to fewer *C. diff* cases. A more robust study is needed to obtain more conclusive results. Converting to disposable leads (\$9.70/lead) also reduced the need to replace misplaced or lost reusable leads (\$61.95/lead) during care transitions. More objective data is needed to determine true cost-effectiveness of the intervention. These results suggest the use of disposable EKG leads contributed to quality improvement and improved utilization of resources. Disposable EKG leads, in addition to hand hygiene and other meticulous environmental infection control practices, may help reduce HAIs in the inpatient oncology setting. Eliminating the need to replace lost or misplaced reusable EKG leads during care transitions can also improve nursing satisfaction and utilization of resources.

### **ROLE OF ONCOLOGY PRACTICE NURSE IN A STANDARDIZED PROCESS TO IMPROVE TIMELINESS OF HOSPICE ENROLLMENT: A PRACTICE TEAM MODEL**

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Timely enrollment in hospice, measured as greater than 7 days before death, is a standard of the Oncology Practice Initiative (QOPI) certification program. Practice barriers to timely referral include discomfort with end-of-life conversations, confusion about who should initiate the discussion, and failure to identify eligible patients. The aim of this study was to reduce barriers to and improve timeliness of Hospice enrollment. Baseline data collected from chart review included hospice enrollment date, date of death, and source of hospice referral. Process flow mapping, fishbone diagramming and Pareto graphing identified most common barriers/causes of late enrollment. Change interventions were:

implementation of nurse-led weekly practice team meetings, use of screening tools with palliative care triggers and surprise question, and scripting for providers to introduce hospice conversations. Practice nurses tracked the frequency of hospitalization/readmission and ED visits. Hospice enrollment varied by referral source. Patients referred directly from the practice to hospice had longer Hospice enrollment (median = 30 days) than those referred during an inpatient admission (median = 2.5 days). Overall percentage of patients enrolled in Hospice > 7 days improved from baseline of 45% to 62% (n = 52) after change interventions. The percentage of timely practice referrals was sustained over 2 change cycles (80% and 75% respectively), and percentage of timely inpatient referrals improved from 9% to 44%. This QI project enabled our team to see practice patterns that supported timely hospice enrollment. We standardized a structure and process, which provided the practice team with tools to improve screening of patients with progressive cancer, and scripts to facilitate conversations about hospice. Practice providers agreed use of screening tool with surprise question, “would you be surprised if your patient died in 6 months,” enhance realistic appraisal of prognosis in face of deteriorating status. Practice nurses provided leadership by coordinating weekly team meetings and by keeping focus on those patients not improving after hospitalizations. Moreover, practice nurses were charged with introducing hospice as an option for non-curative patients. Practice teams were able to meet and exceed QOPI benchmark for timely referral. Oncology nurses in the role of practice nurse can implement structures and tools to facilitate timely hospice enrollment.

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### **LEADERSHIP/MANAGEMENT/EDUCATION**

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### **PLANNING FOR THE FUTURE: GROWING THE NEXT GENERATION OF ONCOLOGY NURSE LEADERS**

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Among a high performing inpatient oncology service line, 50% of the leadership team at an academic medical center anticipated concurrent and consecutive maternity leaves. As a service line with high patient satisfaction, high nurse engagement, and improved quality metrics, the leadership team wanted to

minimize disruptions to the team and overall culture of excellence during the times of transition. The goal of the project was to create a formal education and training program that prepares and develops front-line oncology nurses to presume the role of a nurse leader during extended planned absences. The current nurse leaders met to establish the criteria for candidacy which included: interest in leadership, strong communication skills, and ability to positively influence a group. Applicants were required to submit a resume and sit for panel interviews with the leadership team. Expectations and a timeline were reviewed with the candidates. The novice leaders were provided a mentor, enrolled in job specific classes, and received 2–3 weeks of training with a current leader. A phased approach was used so that each novice leader had time to work in the role while their predecessor was able to step back and offer support as needed. Drawing from Benner's conceptual model, the novice leaders were provided with ongoing coaching sessions and group meetings with the service line leaders as they assumed their roles. Qualitative data was collected through the use of an electronic survey with both open-ended and multiple choice questions. Novice leaders ranged in formal leadership experience from zero to 1.5 years. Prior to the program beginning, the candidates expressed concerns regarding making a mistake, managing and prioritizing competing demands, managing the transition for the front line staff, and peer-to-peer conflict. Novice leaders found that mentorship and support from other leaders was perceived as beneficial prior to assuming the role. Post-surveys will be collected at three months to identify program effectiveness, strengths, and opportunities. Preparing a succession plan can minimize disruptions to operations, sustain engagement, and create opportunities for growth. Mentorship and coaching by leaders can positively impact a novice leader's transition into a new role. Nurse leaders have the ability to motivate and inspire leaders at the bedside. With support and guidance, novice leaders can make a seamless transition into a formal leadership role.

### **DEVELOPING A CHECKLIST TO ENSURE STAFF COMPLIANCE TO CHIMERIC ANTIGEN RECEPTOR (CAR) T CELL INFUSION REQUIREMENTS**

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CAR T therapy is a new line of immunotherapy that utilizes genetically engineered T cells to target cancer cells for destruction by the patient's immune system. Two products are commercially available along with

multiple ongoing clinical trials in hematologic malignancies and solid tumors. Specific guidelines for the administration and monitoring of patients are mandated by Institutional Review Board (IRB) protocols for research products and the Food and Drug Administration (FDA) for commercial products. Baylor University Medical Center at Dallas, Texas was approved to administer Yescarta® CAR T cells for the treatment of relapsed/refractory large B cell lymphoma. The facility is currently in the approval process to administer Kymriah®. The approval process includes extensive review of clinical processes by the manufacturer including cell collection, cellular product infusion, activator administration, and management of post infusion complications. To ensure adherence to the required administration and monitoring processes, a checklist was developed. Key components specified in the product insert and program standards guided the development process. Elements on the checklist include, but are not limited to, specific patient education content, prerequisites for administration, assessment/documentation of a wallet card and availability of two doses of tocilizumab. Steps on thawing and infusing the cellular product were also detailed in the checklist. Staff were inserviced on the checklist. A CAR T resource binder was made available to the unit to facilitate availability of information for bedside staff. Since approval of the facility in January 2018 to administer Yescarta, seven patients have received treatment. Audits were conducted to assess compliance with required components. Audit results identified opportunities for improvement in nursing documentation of patient education and availability of tocilizumab on the inpatient unit. Both are components on the CAR T infusion checklist. Based on identified opportunities, the checklist was reviewed by key nursing staff for completeness, clarity and accuracy. The review team concluded the checklist covered required administration and monitoring processes. The team determined that identified improvement opportunities were primarily due to inconsistent utilization of the checklist. Commercial CAR T products are regulated by the FDA and require adherence to specific regulatory practices. A comprehensive audit process evaluating each patient who receives CAR T cells provides identification of problematic areas.

### **USING SIMULATION TO DELIVER CHEMOTHERAPY ADMINISTRATION EDUCATION TO NEW ONCOLOGY NURSES**

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Caring for patients with cancer involves the administration of chemotherapy/biotherapy which is a high-risk, multidisciplinary process regulated by nationally mandated standards to ensure patient and caregiver safety. At our institution, many of the nurses hired into oncology areas are new graduates with no experience in the safe administration and handling of chemotherapies and biotherapies. A literature review identified that curriculum utilizing interactive teaching strategies are more effective in satisfying the different learning styles of participants from varied backgrounds and promoting critical thinking and clinical reasoning. A survey of oncology nursing staff identified hands-on chemotherapy administration education as the top priority when caring for cancer patients. The educational format used at the time of the survey consisted of a didactic presentation in a classroom setting where only two to four participants out of twelve participated in hanging a chemotherapy and programming the infusion pump. A four hour interactive chemotherapy administration course was developed which included multiple learning strategies that would promote the knowledge and confidence to safely administer chemotherapy/biotherapy. The course was structured to include a PowerPoint using a case study that guided the delivery of content with interactive strategies and simulation incorporated to replicate the actual administration process per hospital policies and ONS standards. A regimen was purposefully chosen to incorporate administration of a chemotherapy, biotherapy, and vesicant. High fidelity simulation included creating a training patient in the electronic medical record in order to review orders, perform dosage re-calculations, verify consent and lab values, and check references. The nurses worked in pairs in the nursing simulation lab to perform a hands-on return demonstration including bedside identification of patient, pre-medication administration, donning correct PPE, proper administration, and disposal of chemotherapy. A quiz was administered at the conclusion of the course; a passing score along with successful return demonstration fulfilled the requirements for chemotherapy competency. Incorporating high-fidelity simulation into chemotherapy training has been well received by staff. From January-September 2018 over 70 nurses were educated using this new format. Evaluations from attendees indicate satisfaction with the format and increased applicability to their practice. Feedback

from the participants is on-going and drives changes in the course content. To date there have been no significant changes in the number of reported chemotherapy administration errors.

## MOVING THE MARK ON ALL LEVELS THROUGH MENTORSHIP

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Oncology patients are highly complex, which can be overwhelming for novice registered nurses (RNs) and may contribute to compassion fatigue and job burn-out. "Nurses working with patients with cancer are exposed to many stressors, such as coping with their patients' complex disease processes and treatments while providing physical, mental, and emotional support." The unit was preparing to onboard new graduate RNs; therefore, nursing leadership and the unit preceptor committee co-chairs identified the need for a mentorship program. This poster presentation provides an overview of a staff-developed mentorship program supporting novice nurses in their orientation journey. The goal of the program was to enhance the confidence and skills of novice RNs who have completed their departmental and unit-based nursing orientation. Identified outcomes of the program are to improve retention, promote a healthy work environment, and enhance patient experience. This project occurred within a 33-bed inpatient medical oncology patient care unit in an academic Magnet-recognized hospital. 16 novice nurses from the unit were paired with 16 experienced RNs who volunteered to participate as a mentor. The mentorship program was modeled from evidence-based frameworks found within literature and adapted to fit the unit's culture. Participants filled out questionnaires about their educational background, learning style, and hobbies, which were used to create mentorship pairings. It was recommended that mentorship pairs should connect at least once a month during the program in addition to reviewing resources for creating a healthy work environment. Surveys sent to participants who completed the program indicated the program increased confidence in nursing practice and fostered teamwork amongst staff on the unit. Hospital Consumer Assessment of Healthcare Providers and System (HCAHPS) scores for the unit also steadily improved within a 12 month timeframe of the program, indicating increased confidence and skills of the nursing staff. Oncology nursing is complex.

Novice RNs may feel overwhelmed in their first year of nursing. A mentorship program provides the mentee with a role model and enhances their ability to mentor others in the future. Mentorship is a key element of nurse satisfaction, teamwork, and retention. One mentor shared that mentorship is important because “mentors listen and help our new nurses cope with some of the toughest challenges.”

### **GERIATRIC RESOURCE NURSES TRANSFORMING CARE OF OLDER ADULTS AT A COMPREHENSIVE CANCER CENTER**

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10,000 people are turning 65 every day since 2011. Cancer incidence for those 65+ is cumulatively 53.4%. Incorporating geriatric education in the oncology setting helps keep pace with this vulnerable population. In 2012, our center began training oncology nurses using the model of Nurses Improving Care for Healthsystem Elders (NICHE) Geriatric Resource Nurse (GRN) online program, in conjunction with monthly oncology-focused live classes. NICHE is an international nursing education and consultation program designed to improve care of older adults (OA) in healthcare organizations. Our aim is to provide optimal care to OA with cancer by improving nurses' knowledge of geriatric care. To measure improvements in our geriatric oncology GRN program, we participated in the NICHE Geriatric Institutional Assessment Profile (GIAP) survey. Previously participated in 2012 and 2013. 132 surveys of 244 emailed surveys were completed (54.1% response rate). The survey remained open for 60 days. RNs who completed the survey work on both inpatient units and ambulatory clinics. Detailed survey results are being tabulated and pending. Survey analysis will include (a) Respondent characteristics (age, years at institution, years in profession, gender, position, and race or ethnicity), (b) Knowledge and attitude questions specific to incontinence, pressure injuries, restraints, and sleep, (c) Staff perceptions of professional issues related to older adult care, and (d) Assessment of geriatric care environment. The GIAP survey results will be benchmarked against other NICHE facilities nationwide and will assist in identifying gaps in geriatric nursing practice competencies. According to the

Institute of Medicine 2008's report on aging, one in five adults will be 65 and older by 2030 and the overall health care workforce is not adequately trained to care for OA. Ongoing geriatric education to nursing staff is vital to meet the needs of OA with cancer. The GIAP analysis will provide a comprehensive picture of the nurse workforce development needs and identify priority areas to improve the care practices of oncology nurses. Our center is one of only several National Comprehensive Cancer Network (NCCN) centers to participate in the NICHE program. Through the NCCN network and other national cancer forums, we will share the benefits of NICHE participation in the hopes of broadening the reach of this innovative program to geriatric oncology populations across the country.

### **USE OF FELLOWSHIP TO EDUCATE AND TRAIN NEW GRADUATE ADVANCED PRACTICE NURSES IN ONCOLOGY**

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An increasing number of nursing graduate programs are focused on general rather than specialist training leaving a void, in skill and knowledge critical to new oncology advanced practice nurses (APNs). In 2016, the Center for Advanced Practice and Center for Education and Professional Development at Stanford Health Care began a one year Advanced Practice Provider (APP) Fellowship Program to fill the gap. The purpose of the Fellowship is to educate and train APPs, who have graduated from a Master's program within one year of application, in transition to practice, professionalism and the specialty knowledge of oncology. The Oncology APP Fellowship uses a combination of practice, Socratic and didactic based learning. The curriculum is based on the standards by ONS for Oncology Advanced Practice Nursing, Quality and Safety Education for Nurses (QSEN) and National Organization of Nurse Practitioner Faculties (NONPF). A novel strategy to teach standards like coordination of care and cultural sensitivity is the fellows' observation of patients and families thorough the trajectory of care. A formal mentorship program is incorporated and, if the fellow is hired into a permanent position, is continued a second year to facilitate the transition from fellowship to staff. The program outcomes include continuance of practice in oncology, membership in a professional organization, attendance at a national conference, completion

and presentation of a clinical project, completion of simulated learning experiences and number of independent patient encounters. Evaluations of practice based learning, conducted at the end of each clinical rotation, show progression by Benner's criteria. The insights of the observation experience are shared with others through formal and informal reflections. The experience often informed clinical projects. The target (60%) of program outcome measures have been met by cohort one and two, including 100% continuance in oncology practice. Specific results will be described at Congress. While the APP fellowship in oncology using Oncology Advanced Practice Nursing standards and other professional criteria is possible, the unexpected finding is the increased engagement among all APP who precept, mentor, guide and teach the fellows. Our experience can be helpful to other cancer center who are considering an APP fellowship in oncology.

### **GEN Z—KEEPING OUR NEWEST GENERATION ENGAGED FOR THE NEXT 40 YEARS**

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There has been a lot of research and publications regarding burnout, compassion fatigue, and nurses leaving nursing for the “Millennial” generation. There is very little information regarding the newest generation now entering the nursing workforce, “Gen Z.” The purpose of this presentation is to share data regarding these young healthcare workers just entering the workforce. After three years of continuous improvement processes to address compassion fatigue and burnout in the context of a Compassionate Workplace (CW) initiative, outcome analysis from employee engagement and CW surveys demonstrated a successful program. Unfortunately this success did not include nurses, aides, or medical assistants in the 20 to 30 year range. Better understanding of this age group and how they define support by employers will be a key factor in keeping them engaged for a potential 40 years. Through the use of focus groups this project identified the stressors, what really matters to this group and specifically what an organization can “hard wire” into the work environment to support resiliency in this newest generation of healthcare providers. Using focus groups of four to six nurses per group, through the organization's population sciences office, healthcare workers in this age group were interviewed to identify any unique characteristics that could be implemented into the current CW initiative. Demographics, current self-care

practices, specific ideas that could be offered in the work environment (yoga, meditation, massage, etc), and open ended discussion that might be helpful information to employers was collected and summarized. Information from all focus groups was analyzed with recommendations for supporting resiliency in this age group to nursing leadership and senior administrators. The newest generation of healthcare workers entering the workplace have some unique needs that must be addressed as they experience the compassion fatigue that is a natural part of oncology nursing. Understanding how to help this demographic develop resiliency and keep them engaged in the care of cancer patients is critical to a strategic plan for cancer centers to sustain growth and provide quality care to cancer patients. This project is a “first step” in developing a foundation of research to build upon in the future.

### **EDUCATING ONCOLOGY NURSES IN UNDER RESOURCED COUNTRIES: EXPERIENCE IN NIGERIA**

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The disparity between healthcare in resourced versus under resourced countries is broad and inclusive of all aspects of healthcare including oncology. The high cost of oncology care leaves many under resourced countries unable to provide basic therapies such as chemotherapy, radiation and surgery much less the newer, less toxic and more effective targeted therapies. Additionally, the education of the healthcare staff in these countries is limited as compared to standards set in the United States with a majority of nurses receiving only basic nursing training without specialization in oncology. Here we present the method and tools developed by a small team of healthcare professionals from Stanford Medical Center in conjunction with the Clinton Health Access Initiative (CHAI) to improve the education and collaboration of oncology healthcare providers and thereby the quality of care available for oncology patients at two university hospitals in Nigeria (Lagos University Teaching Hospital [LUTH] Lagos, Nigeria and Ahmadu Bello University Teaching Hospital [ABUTH] Abuja, Nigeria). A need for advanced oncologic education of a small number of nurses currently practicing as oncology nurses at both centers was deemed a high priority by both the Stanford and Nigerian teams. Therefore, the Stanford-based oncology nurse practitioner proposed a face-to-face training utilizing the current standard qualification for oncology nurses in the United States,



the ONS/ONCC Chemotherapy/Biotherapy Certification course. Sponsorship was secured and subsequently 6 nurses were identified by the ABUTH and LUTH administration as key change leaders at their respective centers. In August 2017, these nurses met with the Stanford-based nurse practitioner to complete training. Due to the disparity between the basic education of nurses in the United States and Nigeria, a curriculum was developed to provide basic cancer knowledge including the basic biology of cancer in addition to a comprehensive review of the curriculum recommended by ONS for the passing of the certification course. All 6 nurses passed the online test and are now utilized in their respective centers as oncology nurses. In conclusion, ONS/ONCC Chemotherapy/Biotherapy Certification can be applied as a standard tool to increase knowledge and education of oncology nurses in under resourced facilities. Plans are underway to continue oncology training of the oncology nurses in Nigeria as well as to apply a similar model in an upcoming project in Belize.

### EVALUATING THE CHALLENGES OF ONCOLOGY NURSES DURING THE INFUSION OF MONOCLONAL ANTIBODIES IN A LARGE URBAN MEDICAL CENTER

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One of the recent advances in the treatment of cancer includes monoclonal antibodies (MoAbs). Infusions of MoAbs can feel daunting for both patients and members of a healthcare team due to use of MoAbs still being in its nascence and with this, a high rate of infusion reactions. Specific to nurses, if they have insufficient knowledge about these agents, the challenge of administering, monitoring, and managing side effects can be stressful. One strategy to increase comfort level of nurses working with patients who receive MoAbs is to increase knowledge. The first step is to understand the existing knowledge gaps related to the administration, monitoring and management of side effects of MoAbs, and from this knowledge, create targeted educational initiatives to address those gaps. The purpose of this project was to assess for challenges and learning needs of inpatient oncology nurses related to the administration, monitoring of and management of side effects of MoAbs in a large urban hospital with an NCI-designated comprehensive cancer center. Two validated tools (i.e., the Self-Assessment Tool and the Needs Assessment Tool) were used to evaluate challenges encountered with infusions of monoclonal antibodies. Data were

collected through surveys distributed electronically to inpatient oncology nurses. Among the 126 surveys distributed, 50 chemotherapy/biotherapy certified oncology nurses completed the survey. Findings indicated the greatest needs were for scientific pharmacologic knowledge about dose adjustments when administering MoAbs (51.0%), general knowledge about MoAbs (40.8%), knowledge about growth factors (38.8%), and management of infusion reactions (20.4%). Evaluating pertinent lab data was also a challenge. The findings indicate that it may be beneficial to assess for knowledge gaps early in the process of treating patients with cancer with new and emerging therapies such as MoAbs. As oncology nursing continues to grow and change with the evolution of cancer care, oncologic therapeutics are advancing rapidly. If oncology nurses do not maintain current knowledge as the field in which they specialize, patient care will be compromised. In addition, therapies such as MoAbs are expensive and making errors in judgment based on reactions to therapy can be costly for patients as well as the healthcare system.

### OUTCOMES OF AN ONCOLOGY NURSING FELLOWSHIP PROGRAM: FINDINGS FROM THREE COHORTS

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Due to the increasing number of cancer survivors, there is a clinical need to stimulate oncology nursing interest in undergraduate nursing education. We developed a 6-week oncology nursing fellowship for rising UNC Chapel Hill School of Nursing (SON) seniors in an undergraduate program in partnership with the North Carolina Cancer Hospital (NCCH) and the UNC Lineberger Comprehensive Cancer Center (LCCC). The first was funded in 2016, Fred Flynn supported 2 rising senior nursing students in memory of his wife, Susan D. Flynn. Successive cohorts were funded by Robert Lauterborn, in memory of his wife Sylvia, and UNC LCCC. This fellowship aims to expose nursing students to a variety of clinical and educational opportunities to foster professional development in oncology nursing. We evaluated 3 cohorts (8 students) who participated in this fellowship. Each year, 2-3 students are competitively selected. Students spend 6 weeks rotating

through inpatient and outpatient units at NCCCH, including radiation oncology, palliative care, clinical trials, and hospice care. Nursing students are required to develop and present a topic of interest related to oncology nursing. Presentation topics range from symptom management, palliative care, adolescent and young adult survivorship needs, interprofessional communication, and advocacy. These topics are expanded during their senior year as the students complete an honors project. All eight nurse fellows from three cohorts responded to the survey (6 females and 2 males; mean age 23). Six nurses are working in a variety of settings: pediatric oncology, gynecological oncology, cardiac-thoracic surgical intensive care and inpatient oncology (n=2). The remaining three are still students with one student currently working as a nursing assistant on the inpatient oncology nursing unit. The nurse fellows reported more comfort with clinical skills, therapeutic and professional communication, and working as part of an interdisciplinary team after program completion. All nurse fellows report a desire to attend graduate school, become involved with hospital initiatives and/or become certified in oncology nursing within 5 years. Nurse fellows recommend that future nursing students take advantage of similar fellowships, shadowing opportunities, and membership in professional organizations including ONS. This fellowship is unique in its collaborative efforts between the SON, NCCCH, and LCCC to provide nursing students a comprehensive experience in oncology nursing.

### **EXPANDING THE RAINBOW: INCREASING LGBTQ SAFEZONE TRAINING ACROSS A LARGE CANCER CENTER**

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According to a position statement released by American Society of Clinical Oncology, there is a lack of clinicians with the education and skills to care for members of the lesbian, gay, bisexual, transgender & queer (LGBTQ) population. There is a need for clinicians who care for LGBTQ patients to be familiar with LGBTQ terminology, recognize specific cancer risks and barriers to accessing screening and treatment related to cancer. The purpose of this initiative was to design and implement a LGBTQ SafeZone training program that could be delivered to clinician and frontline staff across the institution. Members

of the LGBTQ Employee Resource Network (ERN) education council met in early 2017 to review Safezone training guidelines and began to develop a program for the institution. A slide deck was developed that focused on LGBTQ terminology; cancer risks by group; barriers to accessing care, strategies for reducing barriers to care and resources for clinicians and patients. An inaugural presentation was scheduled during Nursing grand rounds in June 2017. Following that presentations requests for additional presentation was submitted to the ERN leadership and scheduled throughout the remainder of the year. In the following year, recognizing the need to scale up opportunities for more frequent presentation, the ERN education council invited additional council members to receive training on the presentation content and the group was able to train 3 additional trainers. The first year of the Safezone training was focused on executing in the operational components of the training and gauging interest. Within the first year, from June through December of 2017 seven Safezone trainings were scheduled resulting in 160 attendees. During 2018, by streamline the operational efforts to request trainings and additional trainers, 455 number of employees have completed Safezone training over 22 sessions. Clinicians and front-line staff caring for LGBTQ have a responsibility to provide culturally competent care and familiarize themselves with the unique healthcare needs of this population. Safezone trainings offer the opportunity for the healthcare workforce to meet this need and improve the overall patient experience. With the appropriate staff trainers, the development of a Safezone program is an uncomplicated process that can be easily implemented.

### **STREAMLINING NURSE ONBOARDING TO ONCOLOGY ACROSS A HEALTHCARE SYSTEM**

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Efforts are underway to streamline policies and practices throughout one of the largest not-for-profit healthcare systems in the nation. A recent initiative has been the standardization of nurse onboarding to ensure all incoming nurses receive adequate preparation and meet various competencies to provide quality patient care. However, training and competency verification for specific service lines, including oncology, continues to vary among facilities. The Oncology Nursing Society (ONS) states that specialized education is needed for the oncology nurse to perform proficiently. In support of that declaration, ONS developed a set of competencies to define

and guide the role of the oncology nurse generalist. The competencies reflect the knowledge, skills, and expertise needed for the nurse to understand and provide excellent cancer care. In order to standardize nurse onboarding to oncology across the healthcare system and effectively prepare the nurse to succeed as an oncology nurse generalist, a series of interactive online modules based on the aforementioned competencies is being developed. A team of oncology nurse leaders and educators identified topics essential to understanding the principles of oncology nursing care. The agreed upon topics were assigned to members of the team for development. The content will be reviewed and revised based on feedback from team members, the system oncology council, and the system education council. Each topic will be developed into an interactive, online module using the Learning Management System (LMS). The modules will be assigned to and completed by the nurse during orientation. Feedback will be solicited from those involved in the onboarding process, including nurses, managers, educators, and preceptors, to evaluate the helpfulness of the modules in preparing new oncology nurses and identify topics for future development. Additionally, the number of nurses who completed the series will be followed quarterly through LMS reports. Focused education is essential for the nurse to provide effective cancer care. The implementation of a series of online modules across the healthcare system will ensure all nurses onboarding to oncology receive the information needed to meet competencies specific to the oncology nurse generalist role. As a result, the nurse will be equipped with an understanding of the basics of oncology nursing and the tools needed to care for patients with cancer.

### **IMPROVING PATIENT EDUCATION: LIVE TEACHING SESSIONS IN AN INPATIENT HEMATOLOGY/ONCOLOGY UNIT**

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Hematology/Oncology patients face multiple challenges related to their diagnosis. One of these challenges includes having to learn and understand many new concepts related to their disease and treatment plan. Adequate patient education is essential for patients and caregivers to help prevent unexpected readmission and minimize complications with their diagnosis and treatment. In the inpatient setting,

bedside nurses struggle to find adequate time to assess educational gaps and reinforce learning with their patients. Last year, our unit based Education Council designed a patient and family resource room, complete with evidence-based, standardized and self-guided educational materials that would be accessible at any time for use. This intervention showed success, but an informal assessment proved it was being under-utilized. In response to this gap, our unit-based Education Council developed a plan to use our patient education room to facilitate live teaching sessions twice a month for both patients and caregivers. On selected days, two bedside nurses are pulled from staffing for a four-hour block and have devoted time to plan and teach an educational topic to able participants. If patients or caregivers are not able to travel to the patient education room, the nurses can provide individualized teaching sessions in the patient's room. The standardized patient education that was developed with the initial opening of the education room was used as a foundation for the content of the live teaching sessions. Symptom management, infection prevention, and chemotherapy safety are all basic concepts that are covered during teaching sessions though topics can be tailored as needed depending on a patient's plan of care. The patients and caregivers also have the chance to ask questions following the sessions and learn from each other's queries. Following these live teaching sessions, patients and caregivers are given evaluation forms and encouraged to give feedback regarding the information provided. Thus far, attendees have provided overwhelmingly positive feedback when asked if the topics were helpful and easy to understand. Through implementation of live teaching sessions, clinical nurses are able to better meet the educational needs of patients and caregivers. Although the evaluation of this process is ongoing, readmission reduction, increased patient satisfaction and decreasing infection rates continue to be overall goals of the initiative.

### **THE TWO-WAY STREET OF MENTORSHIP IN ONCOLOGY NURSING: A QUALITATIVE ANALYSIS OF OUTCOMES FOR THE MENTOR**

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Mentorship programs are an emerging strategy within the nursing profession used to support the development of newly hired staff. They promote strong group cohesion in the workplace, which is linked to increased

job satisfaction and retention and decreased perception of stress. Extensive literature confirms a wide range of benefits for mentees, however, there is limited information regarding the benefits and outcomes of being a mentor. The mentor/mentee relationship is a peer-to-peer mutual relationship with benefits to both participants. The Huntsman Oncology Nurse Residency (HONR) program at Huntsman Cancer Institute (HCI) has always included an informal mentorship piece, but was in need of a more robust framework. To improve previous efforts, a structured 12-month mentorship program was implemented and a mentor was selected for each nurse resident by the unit leadership teams. Mentors met a prescribed criteria including a BSN degree, full-time FTE ( $\geq 0.75$ ), and experience as a charge nurse and/or preceptor. A two-hour training was provided to the mentors, which introduced the program outline and provided communication techniques to be used in their future role. As the program progressed, a monthly check-in facilitated discussions that promoted learning and self-evaluation. Expected program outcomes for the mentors included professional growth and increased ability to manage stress. The Professional Quality of Life (ProQOL) scale is a tool commonly used to measure compassion fatigue. Both mentors and mentees completed the ProQOL scale through an anonymous Survey Monkey at baseline, six months and twelve months. Additional open-ended questions supplemented this standardized tool to gather qualitative data related to professional growth, clinical knowledge, decision-making skills and ability to manage stress. A preliminary qualitative analysis was performed at the six-month mark by the program coordinators. Evaluation of this data indicated three common themes that reflect the mentor's experience: professional growth, burnout reduction, and making a difference. Professional relationships in a structured mentorship program have potential to create trust, and opportunities for self-reflection while enabling nurses to make a difference in their workplace. We predict our mentors will be empowered to seek out future mentorship opportunities. Evaluation will continue to be measured at 18 and 24 months. We plan to look further into team building and the effect of mentorship on the organization as a whole.

### **IMPLEMENTING A COST-FREE DEDICATED EDUCATION PROGRAM FOR OUTPATIENT ONCOLOGY NURSES**

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Outpatient oncology nurses provide care using extraordinarily high-risk, harmful medications to patients. To further complicate care, oncology protocols constantly change, propelling nurses to maintain education standards to safely treat patients based on the newest developments. With the current economic environment, loss in healthcare reimbursement led to scrutiny of operational cost. Lack of dedicated professionals to train nurses can potentially lead to patient harm. In lieu of a designated educator along with staff desire, nurses using the shared governance model collaborated to implement a nurse-driven education committee across three outpatient oncology sites. To facilitate collaboration, committee members met monthly via telephone conference and bi-annually in person. A yearly learning needs assessment, grounded in ONS/OCN certification criteria, was conducted to identify topics outpatient oncology nurses endorsed as significant to their professional development. From the assessment, a monthly schedule of programs was created. Employing cost-effective measures, the committee utilized existing resources already within the department, hospital system, and an occasional guest volunteer speaker. Presenters were supported throughout the process of preparing educational material, format development, and style of presentation. In the first year, staff nurses presented 100% of educational programs. In the second year, 80% of presentations were conducted by staff nurses and remaining 20% by nurse practitioners, dietitians, physicians, and pharmacists. Program learning was evaluated through quizzes and surveys. In the second year, programs were enhanced by offering a continuing education credit each session which amounted to ten continuing education credits. Staff unable to attend meetings reviewed an equivalent program on the hospital intranet without credit. Average attendance the first year was 38% which increased to 66% in the second year. Surveys reported nurses' appreciation for monthly education sessions. Programs have become so successful inpatient oncology and radiation oncology staff have attended meetings. In addition, Magnet representatives invited the committee to present this education model at nursing grand rounds. It is most heartwarming to experience a nervous nurse present to her peers, shed her fear, and become delightfully proud of her achievement. Cultivating and working in an environment of proud, accomplished peers is extremely satisfying. Furthermore, these educational programs enhance patient safety, which is ultimately the goal of nursing.

## **SIMULATION AS A UNIQUE TRAINING APPROACH FOR NURSING MANAGEMENT OF OUTPATIENT ONCOLOGIC EMERGENCIES**

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Many oncology patients receiving high toxicity medications with increased risks of morbidity-associated side effects are cared for in outpatient oncology clinics. Mounting an emergent medical response is extremely challenging for nurses in this setting. A learning needs assessment completed by 85% of nurses (68 of 75 eligible) from three outpatient oncology clinics identified a significant need for supplemental training in responding to oncologic emergency events. A literature search found only one report using simulation (SIM) training in the outpatient oncology setting. SIM training provides nurses an opportunity to practice and learn in a safe environment with actual hands-on experience. Given these conditions, oncologic emergent response SIM training done in the outpatient environment is clinically significant as nearly all oncology patients are treated in this setting. Oncology nurse educators, with the assistance of an oncology nurse experienced in critical care and SIM training, developed the following three oncology SIM cases: hypokalemic-related code, Taxol-related respiratory reaction, and a hypoglycemic event. SIM training goals were to increase staff comfort with emergent events, enhance emergency response performance, and improve patient outcomes. Prior to training, nurses familiarized themselves with crash cart equipment, emergency response protocols, and SIM objectives. SIM training format was standardized and implemented by designated oncology nurse educators across all three clinics to maintain consistency. Staff was divided into groups with defined roles for each group's participants followed by explanations of the scenarios at hand. Scenarios evolved as educators provided cues triggering nurses' responses to ensure requisite equipment and benchmarks were met. Debriefing included time for questions, feedback, reviewing emergency equipment, and identifying areas of improvement. Pre-SIM training survey reported less than 60% of nurses felt confident using a non-rebreather mask which improved to 90% reporting confidence at post-evaluation. Pre-SIM training found 80% of staff felt confident when to call a code, with training this improved to 93% reporting confidence. Almost all staff (94%) felt SIM training provided better preparation for handling emergent

events. Staff requested future SIM programs geared towards smaller groups for greater hands-on experience. Training outcomes were disseminated to education committee, three site managers, and the oncology nursing director. Moving forward it was determined to conduct yearly SIM training and provide debriefing after each emergent event to maintain best practices thereby improving patient outcomes.

## **THE THRIVE PROGRAM: BUILDING ONCOLOGY NURSE RESILIENCE THROUGH RELATIONSHIP-BASED SELF-CARE**

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Nurses can experience profound effects on their professional and personal lives because of ongoing exposure to human crises among their patients. Some common oncology nurse stressors include grief and loss, and moral and ethical dilemmas. Frequently nurses are taught that self-care and stress reduction can help ease the burden of compassion fatigue, but techniques and self-care strategies are not specifically taught and then applied. This program includes an 8 hour retreat designed to teach staff skills for combating compassion fatigue and promoting resilience, followed by a 6 week independent study group practice, and a final 2 hour wrap-up session. Retreat sessions include the following topics: breathing, yoga, spirituality, art, journaling, guided imagery, and mindfulness. The sessions include exercises & innovative methods for direct application, practice, and sharing of ideas & feelings. The independent study group is structured through a private social media platform, which allows participants to have continued contact with each other and facilitators for long-term practice of self-care in every day life. The Compassion Fatigue Short Scale (CFSS) and the Connor-Davidson Resiliency Scale (CD-RISC) were used to evaluate the success of the program through surveys completed prior to, immediately after, and at 3 and 6 months later. To date, 89 oncology nurses in various roles have completed The THRIVE Program. In pre-THRIVE self-assessments, nurse managers



showed the greatest degree of burnout and bedside/chairside nurses showed the greatest degree of secondary trauma. The greatest improvement in average scores pre to post has been in increased resilience (from score of 72 on CD-RISC to 85) and decreased burnout (from score of 41 on CFSS to 23). Increased resilience scores were sustained over a 6 month period post-THRIVE. Nurses must begin taking personal responsibility for their own resilience. Effective self-care requires that nurses possess the skill and knowledge to manage their own stress, articulate personal needs and values, and balance the demands of the job with their physical and emotional health and well-being. The relationship with self is fundamental to maintaining optimal health, for having empathy for the experience of others, and for being a productive nurse. THRIVE provides an innovative method for learning and practicing relationship-based self-care for oncology nurses.

#### **A NURSE-LED INITIATIVE IN AGE FRIENDLY CANCER CARE**

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As the world's population rapidly ages, it is anticipated that the population of persons over age 60 years will double to 22% in the year 2050, and over 20% of that group will be over age 85 years. There are expected to be more older adults than children, for the first time in history. Cancer, a disease of aging, is among the most significant issues facing the aging population. The John A. Hartford Foundation has partnered with the Institute for Healthcare Improvement [IHI] to promote Age Friendly Health Systems, with a goal of developing a model for health systems to address the gaps in current care of older adults. Oncology nurses are uniquely poised to impact and lead the change in care of older adult cancer patients. This project describes an age-friendly initiative in an ambulatory cancer program. The purpose is to describe the implementation of a nurse-led frailty assessment for ambulatory cancer patients with the goal of increasing access to comprehensive geriatric assessments when appropriate, performed by advanced practice oncology nurses, improving symptom management and addressing psychosocial needs

of older adults with cancer. The TRST Frailty screen was implemented in 2016. All patients at start of treatment undergo screening which includes mobility, polypharmacy and changes in mentation. Those patients who score high are automatically referred for comprehensive geriatric assessment by the geriatric oncology nurse practitioner. The goal of this project is to determine the process and feasibility of a geriatric oncology clinic in a cancer center and to improve awareness of and readiness for the needs of older adult cancer patients. Identifying older adults with complex needs at the onset of oncology treatment allows for age-friendly, person-centered, and goal-directed care. As cancer treatment becomes more multifaceted, it is important to identify individuals who may be at higher risk for complications related to their age and comorbidities. This nurse-led project demonstrates an innovative approach to assessment and pro-active symptom and psychosocial interventions for older adult cancer patients. This replicable project provides an example of preparing oncology nurses to deliver age friendly cancer care, focusing on the dignity, values and participation of older adults.

#### **ONCOLOGIC EMERGENCIES IN THE BIG OR SMALL AFFECT US ALL**

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Oncological emergencies are a group of conditions that occur as a direct or indirect result of cancer or its treatment. These emergencies can be potentially life threatening, leading to poorer patient outcomes. Early recognition of oncologic emergencies and initiation of appropriate treatment are crucial to improving patient outcomes. Registered professional nurses receive limited oncology content in their basic nursing programs. Currently, at this medical center there is no standardization in oncologic emergencies education as a part of the on-boarding process. The purpose of this project was to standardize the nursing on-boarding process for care of the adult and pediatric patient populations by incorporating a formalized didactic content covering oncologic emergencies. A pediatric and adult oncology nurse workgroup consisting of 2 unit-based nurse educators and an nurse practitioner developed the content for an ANCC approved 5.5 CEU course that targeted nursing staff from both pediatric hematology/BMT/oncology and the adult hematology/BMT/oncology units. The course is offered every

quarter and is open to any oncology nurse in the medical center that has at least 9 months of oncology experience. A pre/post-course survey and a 3 month follow-up survey will be administered to assess nursing knowledge and confidence. At the completion of the course the participants evaluated a case study and presented their findings to the group. Survey results were followed to evaluate the effectiveness of the delivery course content and application of gained knowledge to nursing practice. The ONS Oncology Nurse Generalist Competency addresses the requirements for fundamental knowledge which focus on safe patient care. Developing on-boarding resources for nurses helps to ease the transition to this highly complex level of care. Engaging nurses from different departments within the cancer center we create invaluable dialog. Shared learning among oncology nurses in the adult and pediatric populations offer a rich exchange of experience and information that can serve to enhance knowledge and understanding of the complexities of oncologic emergencies.

#### **REDUCING THE RISK OF CENTRAL LINE BLOOD STREAM INFECTIONS: IMPLEMENTATION OF A TWO PERSON CARE AND MAINTENANCE MODEL**

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Our 36 bed Medical/ Surgical Acute Care Oncology unit experienced a significant increase in central line associated bloodstream infections (CLABSI). The unit went from years of being well below the national benchmark standardized infection ratio (SIR) rate of <1 to 2.49. The unit's leadership team evaluated the gaps in care and identified that there was a 40% turnover in registered nursing staff resulting in deficiencies in central line care and maintenance. The current recommendations for CLABSI prevention were not consistently implemented and resulted in inconsistent and unsafe care. The purpose of this project was to ensure standardization of nursing practice for central line care and maintenance by using a two person model to decrease our CLABSI rate to zero. The first step to standardizing care was to assess current practice. The current competency checklist was reevaluated and updated to reflect current standards and workflow. The process of a two person dressing change and blood draw model as well as a review of the current Center for Disease Control guidelines on CLABSI prevention was provided to 63 nurses.

All charge nurses were required to perform a return demonstration of central line dressing changes and accessing an implanted port. This validation ensured that the charge nurses would be an adequate resource for the other nurses on the unit. The charge nurses then used a competency checklist as a double check during all dressing changes and blood draws on the unit. Evaluation: Decrease in SIR rate to 0.90. Inconsistencies in practice and breaks in sterility were identified through the two person model. These issues were addressed with real time education by the charge nurse and ultimately resulted in a change in practice. With nursing turnover at an all-time high nationwide and the projected nursing shortage, it is essential that Nurse Leaders frequently evaluate current practices and create structures to ensure safe and efficient care. A two person care and maintenance model for central lines has been an effective way to address the impact of high turnover and the subsequent challenges to ensuring safe and reliable practice.

#### **IF YOU SEE SOMETHING, SAY SOMETHING; ONCOLOGY NURSE PRACTITIONERS' CONFIDENCE AND COMPETENCE IN ADVANCE CARE PLANNING**

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The National Consensus Project for Quality Palliative Care (NCP) has put forth eight domains of clinical practice guidelines addressing the multidisciplinary nature of palliative and end-of-life (EOL) care. A strategy to increase the multidisciplinary workforce is to provide educational programs in palliative and EOL care for practicing professionals. Palliative care is crucial in clinical management and helps patients and families dealing with disease related symptoms and psychological implications. Given their focus on providing patient and family centered healthcare, APN's are often the first to recognize the need for palliative care that is consistent with nursing standards and code of ethics. This project will discuss training in supporting ANP's role in palliative care as a strategy to address the needs of patients and their families. Using a validated tool we gained an understanding of the NP's perception, attitude and knowledge of providing palliative care and their confidence in leading goals of care conversations. We used a validated instrument to collect data regarding the APN's perception, attitude and knowledge about Palliative Care and goals

of care conversations. The instrument was used at two data points, prior and post education to assess if there are any changes in perception, attitude and knowledge of palliative care. The participants prior to attending the sessions responded to our survey as a little, somewhat or not at all familiar/comfortable with beginning or leading goals of care conversations or applying palliative care principles in their practice. After completing the program all of the participants self-reported an increased level of confidence in helping families accept a poor prognosis, setting goals and feeling comfortable talking to patients and families about personal choice and self-determination. In many cases, family and staff perspectives on goals of care may differ, often due to differences in perspective on the patient's quality of life and the burdens of treatment. This project demonstrates that the use of evidenced based simulation and didactic training has the ability to expand the influence APN's in leading goals of care conversations and the delivery of palliative care. There is a paucity in the literature of the influence of oncology APN's role in palliative care. Globally, the APN's role as a generalist in palliative care has been growing yet has not been fully defined.

## REDESIGN OF ONCOLOGY NURSING ACROSS THE CONTINUUM

**JoAnn Silcox, RN, MSN, CCCTM, Thomas Jefferson University Hospital, Philadelphia, PA**

The oncology program in a large academic health-care system has grown exponentially. There was a need identified to allow oncology nursing to become more unified. Historically, the oncology nurses were in "silos" which created disconnect within oncology nursing. The nurses were across the continuum of cancer care including in-patient, out-patient, infusion, practice centered and in radiation. The purpose of this presentation is to discuss the previous structure and to highlight changes made to allow for the nurses to come together as one. To accomplish this, one needed to create a new leadership structure to plan for growth and innovative therapies which took vision and coordination. In order to develop and sustain this new structure one needed to create a culture of trust while maintaining quality of patient care and promote improvement of staff and patient satisfaction. The purpose of this new redesign was to break down these silos. The interventions included the redesign which allowed for the growth of clinical knowledge, provide an engaged leadership style to promote change and nursing independence. The redesign broke down barriers for patients transition

of care, and promote nursing education and research to provide quick access for patient treatments and support new policies to support the growth of innovative therapies. It established a nursing leadership that actively collaborates with all aspects of the oncology division. This innovative model allowed for new positions including vice president of oncology, director of nursing education, administrative charge nurses, transition of care nurses, nurses specifically designated for chemotherapy safety and a nurse to assure the success of a rapidly growing clinical trials division. This new process created a nurse driven department. The continued review of current state and outlining goals were a daily focus and engaged all staff at all levels. Multiple meetings with NP, nursing staff, infusion staff, physician leads and inpatient nursing and working group to establish mutual goals. Changing old nursing habits and practices with evidence based practices, creating trust with new process identification of educational deficits, and creating an ongoing clinical educational series to promote certification, education new therapies, and promote collaboration with physician and provider leads. Evaluation of this process will include patient satisfaction, nurse satisfaction and nurse retention.

## TREATMENT NURSE NAVIGATION STAFFING REQUIREMENTS

**Mary Szczepanik, RN, BSN, MS, OhioHealth, Columbus, OH; Pauline Bauer, RN, BSN, CBCN®, OhioHealth, Columbus, OH**

Oncology nurse navigation, is a non-revenue generating service. Navigators are often shared with radiation oncology and infusion. Previous studies recommends navigator caseload of 300 new patients per year. The purpose of this project was to create a model for navigation staffing at OhioHealth. Factors at OH contributing to increased navigator time spent per patient: (a) Distress screening and subsequent referrals, (b) Documentation, and (c) Survivorship Care Plans. OhioHealth Oncology Navigation developed the Navigation Documentation Flowsheet in EPIC. Data on flowsheet calculates time for each distinct navigation encounter, including case finding, initial contact, first 30 days, after first 30 days, distress screening, survivorship care plan, documentation, travel, duration of navigation 6 months. The resulting formula for OhioHealth equals 240 newly diagnosed cancer patients per navigator per year. Calculation of treatment navigation required per patient includes initial contact and all follow-up within first 30-45 days after diagnosis. Twenty new patients per

month would equal 3,600 minutes. Follow-up for these patients in the subsequent five months would equal 2,000 minutes. Preparation, delivery, review and routing of survivorship care plans and treatment summaries equals 2,400 minutes. Total per navigator: 8,000 minutes or 80% productivity. Results: Formula used since 2017 when backfilling vacant positions; successfully backfilled all vacant positions (10+). Next Steps: (a) Test formula to justify new positions, (b) Re-evaluate as responsibilities expand, and (c) Modify for diagnostic and social work navigators.

### **DON'T GET CAUGHT IN THE CROSSHAIRS OF PREDATORY CONFERENCES AND JOURNALS**

Mary Vecchio, MSN, APNC, OCN®, CTTS, Hunterdon Regional Cancer Center, Flemington, NJ

A nurse's professional growth and development may be measured by specific achievements. Among them may be the honor of speaking at a conference or being published in a peer-reviewed journal. The lack of awareness regarding predatory conferences and journals may subject a nurse to financial consequences and unprofessional experiences. This predatory phenomenon is not unique to the field of nursing as several other professional publications and organizations have shared similar warnings to their members. The goal of this presentation is to provide the participants with the awareness of "red flags" that should trigger a degree of caution when considering whether or not to accept an invitation to speak or submit a manuscript for publication. This presentation will hopefully minimize the potential for oncology nurses being taken advantage of by profit-seeking organizations. Participants will be provided with authentic examples of speaker/facilitator requests, conference websites, and editorial invites from predatory sources. Engaged discussion will address key aspects of suspicion that an individual should pay attention to when determining if the request is from a professionally legitimate and reputable source. Upon completion of the presentation, participants will be able to recognize at least five common traits of a predatory invitation and identify legitimate resources to validate conferences and publications. Oncology nurses are driven to function in a process that is evidence-based. Unfortunately, there is limited evidence demonstrating the consequences of interacting with predatory conferences and journals. Nurses may have an expectation for publication associated with graduation or employment requirement. The desire to achieve this goal may hinder one's ability to clearly evaluate an intriguing opportunity. Predators seek only financial gain at the expense

of trusting and inexperienced professionals. I have chosen to share my experiences with my colleagues in order to facilitate an open dialogue, free from shame or judgement, regarding the lure and temptation that can be found within innocent appearing emails. I received supportive mentoring throughout my 30 year career and membership in ONS; however the concept of predatory conferences and journals was completely new to me. I do not want others to make the same mistakes. Deception has withstood the test of time. The sharing of "best practices" permits the transmission of lessons learned so that the cycle of deception can be broken.

### **GATEWAY TO INFUSION: DESIGNING A PROGRAM TO SUPPORT NEW-TO-PRACTICE NURSES TRANSITIONING DIRECTLY INTO THE AMBULATORY ONCOLOGY SETTING**

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The Infusion Department at an academic cancer center, averaging 50,000 visits annually, developed a *Gateway to Infusion* program to support new-to-practice nurses transitioning directly into work in the ambulatory oncology setting. The development of such programs for new-to-practice nurses within ambulatory care emerges as an area of opportunity, serving as an important strategy to meet the growing workforce needs. Oncology care continues to migrate to the ambulatory arena, resulting in increased volume and complexity in patient care. Through a variety of educational methods and learning support, the *Gateway to Infusion* program ensures new-to-practice nurses are adequately prepared to provide safe, quality care in this setting. The program materialized as a method to develop skilled infusion nurses. The Infusion leadership team designed this two year program in collaboration with the Chief Nurse Executive, Nursing Education, and Nursing Recruitment. *Gateway to Infusion* ran concurrently with the health system's Nurse Residency Program (NRP) for the first year. For the inaugural cohort, leadership selected four highly motivated nurses with a passion for oncology

and a desire to transition directly into the outpatient setting. Four 3-month phases were completed, which were inclusive of the following: orientations to basic nursing skills; oncology; and chemotherapy. These phases were followed by a post-orientation mentorship. Participants completed the ONS courses *Oncology Nurse Orientation Bundle* and *Chemotherapy Biotherapy Provider Certification*. To strengthen interdisciplinary relationships and promote continuity across the cancer continuum, shadow experiences occurred at various intervals. Supplemental didactic sessions were held by various interdisciplinary professionals who provided interactive lectures. Participants also completed competency validation on numerous critical oncology nursing skills. Retention rates are widely accepted as an effective metric for evaluation of NRPs. At 18-months post-implementation, the program's retention is 100%, exceeding both our internal benchmark of 93.6% in 2017, as well as the Vizient NRP benchmark of 92.7%. *Gateway to Infusion* is one of the first of its kind to be formally established in an academic ambulatory oncology setting. The innovative design proved successful in providing new-to-practice nurses with the knowledge and skills necessary to provide safe, effective care and served as a strategy to address ambulatory workforce needs in oncology. This model can be replicated to develop a pipeline of skilled infusion nurses to meet the growing demand for ambulatory services.

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## RESEARCH

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### USING NARRATIVE RESEARCH METHODS TO EXPLORE THE EXPERIENCES OF PARENTS OF CHILDREN WITH CANCER WHO HAVE SHARED THEIR STORIES ONLINE

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Parents of children with cancer confront complex and traumatic circumstances that greatly disrupt family life. Numerous challenges have been reported including persistent uncertainty, grief, loss of control, distress, and anxiety. However, little is known about parents coping in everyday life, and how they find meaning to sustain their families. Increasingly, parents of children with cancer are using the Internet to share their experiences, producing online narratives

that offer insight into everyday life and issues related to psychosocial well-being. The purpose of this project was to explore the experiential accounts of parents of children with cancer shared publicly via the Internet. The objectives were to improve understanding of parents' everyday experiences of caring for a child with cancer, and illuminate how meaning making and coping are influenced by online communication. A narrative approach was used to analyze publicly available online narratives for what they reveal about family life, psychosocial support needs, and online interactions. Attention was paid to how parents tell their family's story and make sense of experiences. Analysis of 23 online accounts revealed common themes and narrative structures used to share their experiences of navigating childhood cancer. The findings provide insight into everyday challenges, psychosocial needs, and support processes. Parents struggled to make sense of the divergence of their child's life course from what was anticipated, which complicated the meaning making process. Findings can inform oncology nursing and supportive care by improving understanding of families' everyday lives and psychosocial support needs. Furthermore, identification of common narrative structures used by parents to describe their experiences can provide a basis for the development of a clinical tool or supportive intervention for this population. Findings will be described from a qualitative study of online narratives produced by Canadian parents of children with cancer. Parents' experiences of navigating care of their child will be explored to illuminate how they cope with the threat of cancer to their child's well-being. To date, examination of parents' use of the Internet has been somewhat superficial, focusing on the reasons for and types of online communication. This study delved deeper by exploring how parents narrate and co-construct their experiences through online interactions to gain new understandings of parental experiences when a child has cancer.

### SYMPTOM CLUSTERS IN WOMEN WITH BREAST CANCER DURING THE FIRST 18 MONTHS OF AROMATASE INHIBITOR THERAPY

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Aromatase inhibitor (AI) therapy is the mainstay of endocrine therapy for postmenopausal women with hormone receptor positive breast cancer. Women with



breast cancer experience multiple concurrent symptoms or symptom clusters during AI therapy. Indeed, these symptoms are the most commonly reported reason for nonadherence to AI therapy and compromise quality of life. Therefore, it is important to identify the symptoms that co-occur during AI therapy. Few studies have examined symptom clusters using a comprehensive symptom assessment among women with breast cancer during AI therapy. This study's aim was to identify symptom clusters experienced by women with breast cancer during AI therapy using a comprehensive symptom assessment. Symptoms were comprehensively evaluated in postmenopausal women with breast cancer (N=335) who would receive AI therapy symptoms were assessed every 6 months from baseline (pre-therapy) to 18 months post-baseline with the Breast Cancer Prevention Trial Symptom Checklist, Patient's Assessment of Own Functioning Inventory, Brief Pain Inventory, Beck Depression Inventory II, and Profile of Mood States Tension/Anxiety and Fatigue/Inertia subscales. Exploratory factor analyses were conducted at each time point to identify stable symptom clusters over time. Five stable symptom clusters with 3 or more core symptoms were identified among women with breast cancer during AI therapy: cognitive, musculoskeletal, vasomotor, bladder control, and sickness behavior. Weight and dyspareunia symptom clusters appeared at 6 and 18 months after AI therapy initiation respectively. The clusters with the highest symptom burden were vasomotor and musculoskeletal. The symptom burden of vasomotor cluster peaked at a moderate level at 6 months after AI therapy began, and then gradually decreased to a mild level. However, the burden of the musculoskeletal symptom cluster continued to increase to a moderate level through 18 months of AI therapy. Distinct and temporally stable symptom clusters were found among women with breast cancer during AI therapy. This finding may help in guiding assessment and management in women with breast cancer during AI therapy. Future studies are needed to examine predictors of these symptom clusters in women with breast cancer during AI therapy. This was the first study to identify symptom clusters among women with breast cancer during AI therapy using a comprehensive symptom checklist.

#### **USING THE DYNAMIC SYMPTOMS MODEL TO EXPLORE A COMPREHENSIVE LIST OF CANCER PAIN RESEARCH-RELATED VARIABLES**

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**Salt Lake City, UT; Susan Beck, PhD, APRN, FAAN, AOCN®, University of Utah, Salt Lake City, UT; Gary Donaldson, PhD, University of Utah, Salt Lake City, UT; Wendy Chapman, PhD, University of Utah, Salt Lake City, UT; Frey Lewis, PhD, Medical University of South Carolina, Charleston, SC**

Cancer pain is multidimensional. According to the Dynamic Symptoms Model (DSM), a model specifically for studying cancer related symptoms, cancer pain can be influenced by interventions and other antecedent factors such as demographic, physiologic, or environmental factors. Cancer pain research has mostly focused on studying how these various factors affect pain in order to develop personalized cancer pain care. However, outcomes studied in existing research are varied. Comprehensively studying the individual variables influencing cancer pain will give researchers a better and broader view of studying cancer pain. The purpose of this study, therefore, was to generate a comprehensive list of variables used in cancer pain research. The significance and innovation of this study was to facilitate an understanding of the details of complex multidimensional factors in cancer pain research by using the DSM as a framework. A scoping review of literature published since 1990 and written in English was conducted using PubMed, CINAHL, PsycINFO, and the Cochrane Reviews. Articles with full-text access using randomized control trials for studying cancer pain were included, and articles focused on molecular biology, drug testing, or cost calculations were excluded. Content analysis was used to extract variables describing factors presented in the DSM. To address rigor, inter-rater reliability (IRR) examined the extent to which the two raters obtained the same results when they selected the included articles and developed the coding schema. Of 591 retrieved articles, 144 were eligible. The order of the article was randomly sequenced for content analysis. Saturation was achieved with no new codes emerging after 55 articles. Forty-one codes were extracted to present variables used to describe 10 factors related to cancer pain research, including demographic, physiologic, psychological, social, spiritual, environmental, intervention, overarching consequences, pain symptoms, and pain-related symptoms. The IRR values were above 0.80. Personalized cancer pain care requires a broad understanding of the factors influencing cancer pain. DSM is a useful framework for creating a comprehensive list of cancer pain research related variables. The findings can help researchers to consider other possible variables to be included in personalized cancer pain care studies.

## BUILT ENVIRONMENT BARRIERS AND FACILITATORS TO WALKABILITY IN CANCER SURVIVORS

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Physical inactivity is detrimental to the health of those with a cancer diagnosis. The American Cancer Society recommends survivors engage in a minimum of 150 minutes of moderate-to-strenuous aerobic activity each week. Among survivors, physical inactivity is associated with poorer response to treatment, decreased quality of life (QoL), and increased risk of a second primary cancer, while the benefits of physical activity after a diagnosis are significant and include lower risk of treatment side effects and improvement in mood and QoL. Research has elucidated individual-level barriers to cancer survivors' physical activity including fatigue, depressed mood, and time available. For survivors facing these challenges, walking in one's neighborhood may be the most accessible method of regular exercise. Variability in the built environment (aspects of the environment that are human-made) influences walking of healthy populations; however, the impact of neighborhood differences on survivors' ability to walk is largely unexplored. The purpose of this study was to explore built environment barriers and facilitators to walking in cancer survivors. We utilized qualitative descriptive design with photovoice to explore cancer survivors' experience with residential walkability. Photovoice is a participatory process, the use of which community members can "identify, represent, and enhance their community" through photographs supplemented with their personal narrative reflections. We recruited patients with a venue-based approach to identify survivors living in Central Virginia. Participants were instructed to photograph barriers and facilitators they encountered when walking for exercise, then participated in an interview about the photographs. Five themes were identified, three facilitators and two barriers. Facilitators included visual cues in the built environment, which signaled to the walker they had achieved their goals; a broad range of buildings and paths available allowed walkers to build activity into their daily routines, regardless of location or weather; and visual stimulation (beauty, variability) as a motivator. The main barriers were imperfections in the walking path (cracks, cars blocking the sidewalk) which were difficult for fatigued or unsteady survivors to navigate, and concerns about safety (wildlife, lack of sidewalks).

Developing a pedestrian-friendly built environment is important to address in all communities, to avoid creating additional barriers to physical activity for cancer survivors. Cancer nurses should advocate for these policies on a local level, particularly in aging communities where cancer survivorship is highly prevalent.

## HYPNOSIS FOR PAIN RELIEF WITH CANCER SURVIVORS

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Pain is a complex and significant problem among cancer survivors who continue to experience pain long after treatment has ended. Pharmacotherapy has significant adverse effects and does not eliminate pain. Efficacy testing of non-pharmacologic interventions is needed with this population. Hypnosis is a promising non-pharmacologic intervention for improving chronic pain in cancer survivors. The purpose of this pilot randomized trial with a wait-list control was to test the feasibility, acceptability, and preliminary efficacy of a recorded hypnosis intervention (RHI) for chronic pain in cancer survivors. A convenience sample of 40 cancer survivors with chronic cancer-related pain were recruited from a NCI-designated comprehensive cancer center. Participants were randomly assigned to the intervention group ( $n=21$ ) or the wait-list ( $n=19$ ). Participants received a nurse-delivered hypnosis session which was digitally recorded, uploaded to a MP3 player, and listened to daily by the intervention participants for the first 4 weeks and by the wait-list participants during the second 4 weeks of the study. Study measures included PROMIS measures and a demographic questionnaire. Data were collected at baseline, and weeks 4 and 8. Structured interviews to evaluate intervention acceptability were conducted at week 8. Data analysis included descriptive and inferential statistics. Qualitative data were interpreted using content analysis. Of the 40 participants, 95% completed the 4 week measures and 75% completed the 8 week measures. The intervention group's mean baseline pain intensity (0–10 numeric scale) was 6.6 ( $SD = 1.5$ ) and the waitlist group's was 6.9 ( $SD = 1.5$ ). Pain intensity at week 4 was lower in the intervention group ( $M = 6.0$ ,  $SD = 1.7$ ) than the waitlist group ( $M = 6.7$ ,  $SD = 2.0$ ). The RHI effect size on pain intensity was  $d = .27$ . An insight from the qualitative data was that the RHI gave participants permission for self-care, relaxation, and focusing on themselves. The RHI offers a low-cost, accessible, and convenient

hypnosis delivery method that is acceptable to cancer survivors with chronic pain. Further efficacy testing is beginning in a large randomized controlled trial with a collaborative research team. Psychological factors will be examined as potential indicators for who will most likely respond to RHI. In a subgroup of cancer survivors, brain activity will be explored as a mechanism of action for RHI.

### **RELATIONSHIP BETWEEN CANCER HEALTH LITERACY AND HOPE IN OUTPATIENTS RECEIVING CANCER TREATMENT—INTERIM ANALYSIS**

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Cancer patients with poor health literacy may have misconceptions about their disease and ineffective communication with their health professionals, leading to unnecessary interventions or poor adherence to their treatment plans. In addition, cancer patients with a poor understanding of their disease may experience greater anxiety and experience dissatisfaction with their care. Assessing hope in the cancer patient is important as hope impacts the way patients cope with physical, psychosocial and spiritual issues that arise during their cancer journey. No literature exists about how cancer health literacy and hope are correlated. The primary objective of this study is to determine if there is a relationship between hope and health literacy in cancer patients. The secondary objective is to determine factors (e.g. age, gender, race, diagnosis, ethnicity, comorbidities, education level, marital status, religion, employment status, medical insurance status, dependents) that influence the correlation of hope and health literacy. We are conducting this study using an exploratory/descriptive survey design administered to newly diagnosed or recurrent cancer patients within one year of their diagnosis. Two validated tools (Herth Hope Index and the Cancer Health Literacy Test—CHLT) are being used to gather data. We conducted an interim analysis

using data from the first 60 participants. We found a positive correlation between gender and health literacy ( $p=0.04$ ;  $r=.267$ ). On average females scored 25.43 and males scored 22.56 out of a perfect score of 30.0 on CHLT. This is interpreted as a statistically significant difference ( $p=0.00$ ) between the health literacy level of females compared to males. This finding may be clinically relevant to nurses in helping patients understand their cancer diagnosis and treatment. Cancer is a life-changing diagnosis that is processed differently by individuals. Our research so far suggests that gender may play an important role in educating patients. The interim analysis suggests that females may possess a better understanding of their cancer diagnosis and treatment than males. When we educate male patients we may need to direct our education to the patient AND the female partner if one exists. In addition, our study suggests that the more educated the patient is the more health literate he or she is. We plan to complete enrollment and validate these finding with the entire cohort of participants.

### **REVIEW OF VIDEO EDUCATION IN UNDERREPRESENTED MINORITY CANCER SURVIVORS**

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There are approximately 15.5 million cancer survivors in the United States. Among these survivors, underrepresented minority (URM) populations experience cancer disparities in mortality, quality of life, and cancer-related co-morbidities. For example, African Americans and American-Indian/Alaska-Natives have the highest rates of cancer related mortality as compared to other racial/ethnic groups. Cancer disparities are associated with social determinants of health including low socioeconomic status and access to care, along with mistrust of the health care system. Trust is established through effective communication which can be facilitated by provider-patient racial/ethnic concordance. URM survivors rarely experience provider-patient racial/ethnic concordance due to the shortage of URM providers. There is a critical need to provide effective health communication to these at-risk survivor populations. Health education videos featuring URM providers may eliminate provider-patient racial/ethnic concordance as a barrier to accessing quality cancer care. The purpose of this project was to systematically review and synthesize the evidence on the use of video education interventions to promote

health behaviors among URM adult populations living with a cancer diagnosis. We will query Web of Science, Embase, PubMed, PsycINFO, Cochrane Library, and CINAHL databases for English-language articles without date restrictions. We also will search the reference lists of identified articles for additional relevant articles, to avoid retrieval bias. Two researchers will independently use the Covidenceonline systematic review platform to document the inclusion/exclusion process. The process will involve title and abstract screening, full-text screening, and critical appraisal. We will use STROBE and Joanna Briggs Institute criteria to critically appraise the articles remaining after the full-text review. Articles achieving 70% of the criteria will be selected for final inclusion. Data will be abstracted into a matrix for evaluation. Thematic content analysis will be used to identify emergent themes. The project is ongoing. We expect the findings to report descriptions of health education videos, explain how URM survivor populations have used and/or responded to videos, and identify characteristics of videos that influence health behaviors and information seeking behavior. Future directions include development of targeted health education materials for adult URM survivor populations. This is an innovative and promising approach to achieve increased racial/ethnic concordance in health communication.

### **POST-TRAUMATIC STRESS DISORDER IN NON-MUSCLE-INVASIVE BLADDER CANCER SURVIVORS**

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Bladder cancer is the fifth most common cancer in the US, and non-muscle-invasive bladder cancer (NMIBC) represents approximately 75% of newly diagnosed patients with bladder cancer. Having a NMIBC diagnosis with high recurrence rates, and frequent surveillance cystoscopies followed by repeated treatment can be a risk factor for post-traumatic stress disorder (PTSD) symptoms, potentially resulting in negative effects on quality of life (QOL). The purpose of this study was to examine the prevalence of PTSD and to identify the predictive factors associated with PTSD in a population study of patients with NMIBC. NMIBC patients were identified through North Carolina Central Cancer Registry. Of the 5,979 NMIBC population who met the research criteria,

2,000 patients were randomly selected. Data were collected by postal mail survey. The PTSD Checklist for DSM-5 (PCL-5) was included to measure PTSD. Descriptive statistics and hierarchical multiple linear regression were computed to characterize responses and to determine which covariates were associated with PTSD with statistical significance at  $p < 0.05$ . 398 returned their surveys (response rate 22%) and, after excluding 22 incomplete surveys, 376 patients were included in the analysis. The average PCL-5 score was 7.1 (SD = 10.9) in a range of 0–66, where higher scores indicate more PTSD symptoms. Using the DSM-5 symptom cluster severity score, 5.3% of participants met the provisional PTSD diagnosis. Overall, 28.7% met criteria for at least one PTSD symptom cluster. PTSD symptoms had significant associations with age at study enrollment ( $p < 0.01$ ), current disease status ( $p < 0.001$ ), comorbidity number ( $p < 0.001$ ), social support ( $p < 0.05$ ), and cognition-general concerns ( $p < 0.001$ ). After controlling for other variables, significantly higher PTSD symptoms were seen in participants who were younger, were not cured or did not know whether they were cured (vs. cured), had more comorbidities, had lower social support, and had higher cognition-general concerns. NMIBC survivors may be experiencing PTSD symptoms more than the general population (10–20%). Thus, healthcare providers should be mindful of this possibility when planning and delivering care. Assessment and management of PTSD symptoms are needed for NMIBC survivors in the survivorship phase of care.

### **A PILOT STUDY OF TERMINAL DELIRIUM IN HOSPICE PATIENTS WITH CANCER**

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Terminal delirium is highly prevalent in cancer patients at the end of life and its presence is widely accepted as a poor prognostic indicator. Although there are numerous reversible and irreversible causes of delirium, the pathogenesis of terminal delirium is not well understood. A prodrome to delirium includes the temporal progression of physical and/or mental suffering in the presence of overall physical decline, cognitive/psychological decline, end-of-life awareness, and withdrawal. The purpose of this pilot study was to explore whether physical symptoms [pain, shortness of breath (SOB)], psychosocial symptoms (fear), or spiritual activity collected at admission to hospice are associated with terminal delirium in cancer patients. This study included a descriptive, correlational study design that utilized retrospective chart review. A sample of 62



hospice patients with cancer was included in this pilot study. Data for the independent variables (pain, SOB, fear, spiritual activity) were collected from hospice admission data. The Centers for Medicare & Medicaid Services' Hospice Item Set data were used to determine pain and shortness of breath. Fear was assessed in the psychosocial admission assessment when patients were asked: Do you have any significant fears about the future? In the admission spiritual assessment, patients were asked whether they were spiritually active. Terminal delirium, was determined through chart review of nursing documentation of symptoms. Data were analyzed using descriptive statistics and correlational analysis. Lung cancer patients comprised the largest percentage (30.6%) of the sample. Sixty percent reported pain, 40% reported SOB, 63% reported fear, 47% reported being spiritually active, and 45% experienced terminal delirium. Of the fears reported, fear of pain (58%) was the most reported. Correlational analyses did not reveal any statistically significant relationships between the independent variables and terminal delirium. To date, there are no published studies that explore terminal delirium and hospice admission data in patients with cancer. This pilot study provides some beginning information about the relationships between these variables. Although relationships between variables were not statistically significant, the sample size was small. In future studies, a prospective approach using reliable and valid instruments should be implemented. The self-reported physical and emotional symptom burden was notable in this study. Future research should focus on using an interdisciplinary team approach to mitigate these symptoms in cancer patients.

### **EFFECT OF AN EXERCISE INTERVENTION ON NUTRIENT INTAKE IN CANCER SURVIVORS**

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The study examined if participation in an exercise intervention as compared with more passive health promotion would affect cancer survivors' nutrient intake over a 12 month period. Female cancer survivors (n=154) who were perimenopausal or in early postmenopause participated in a 12 month randomized controlled trial in which they were assigned to an aerobic resistance exercise intervention arm or a health promotion arm.

Four day diet data were collected at baseline, 6 and 12 months and analyzed using the ESHA Food Processor software program. Means and standard deviations described nutrient intake. Generalized linear mixed models were used to determine changes in energy and nutrient intake between baseline and 6 months, and baseline and 12 months, controlling for baseline intake. Statistical significance was set at  $\alpha=0.05$ . Participants' energy and mean daily intake of 4 major nutrients at baseline were energy: 1535.0±406.1 (kcal), energy per unit of weight: 21.2±8.0 (kcal/kg), protein: 70.4±18.4 (g), protein per unit of weight: 1.0±0.3 (g/kg), total fat: 55.5±21.3 (g), carbohydrates: 183.8±57.9 (g), and fiber: 17.0±8.0 (g). Protein intake at baseline was significantly higher in the health promotion group (1.0±0.4 g/kg) than in the exercise intervention group (0.9±0.3 g/kg) ( $p=0.03$ ). There were no other significant differences at baseline between the groups in other nutrient intake or energy. At baseline, the majority of participants in both groups met the Institute of Medicine calorie composition recommendations for adults. Participants in both groups reported a decreased intake of energy, protein, total fat, and carbohydrates over the 12 months. Fiber intake at 6 months increased slightly from baseline for both groups. However, none of the changes at 6 and 12 months was significantly different between the 2 study arms. Although the physical activity level of participants in the exercise intervention group increased over the 12 months of the study, it did not affect their nutrient intake behavior. Thus, targeted interventions specific to diet are needed to increase energy and nutrient intake among female cancer survivors. Repeated dietary assessment and monitoring from health care providers are needed to promote healthy lifestyle behaviors in cancer survivors.

### **SYMPTOM SEVERITY IS NEGATIVELY ASSOCIATED WITH SYMPTOM COMMUNICATION OVERTIME AMONG OVARIAN CANCER SURVIVORS: ESTABLISHING THE NEED FOR APPROPRIATE SYMPTOM COMMUNICATION**

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Women with ovarian cancer often struggle to communicate their cancer- and treatment-related symptoms



to their healthcare providers. The purpose of this study is to examine the frequency by which women with ovarian cancer communicate their priority symptoms with their healthcare providers and the longitudinal association between symptom severity and communication. Women with recurrent ovarian cancer were recruited from 68 Gynecological Oncology Group (GOG) sites to the Written Representational Intervention to Ease (WRITE) Symptoms® (GOG-0259) randomized clinical trial. Participants (N=497) completed monthly questionnaires including the Symptom Representation Questionnaire rating the severity of 28 symptoms on an 11-point scale. They prioritized three symptoms over which they wanted to gain better control. A 4-item communication questionnaire assessed symptom communication with providers, and was dichotomized based on patients' symptom severity score as appropriate (severity 0–10 and any level of communication) or inappropriate (severity 5–10 and no or limited communication). We performed a stepwise binary logistic regression to develop a predictive model of inappropriate symptom communication styles at baseline controlling for age, education, optimism, anxiety, depression, and social support. Second, we analyzed changes in symptoms and communication overtime by calculating mean score differences and Pearson product-moment correlations between symptom severity and communication appropriateness at each time-point (baseline, 4, 8, and 12 weeks). Appropriate communication occurred for 42–94% of women's top symptoms. Symptom severity was the strongest predictor of appropriate communication at baseline (OR=0.63, 95%CI (0.61–0.65),  $p<0.001$ ). Women with high symptom severity scores were 37% less likely to have appropriate communication at baseline compared to women with low symptom severity scores. Symptom severity decreased ( $t(2616)=18.81$ ,  $p<0.001$ ) and appropriateness of communication increased ( $\chi^2(3)=115.15$ ,  $p<0.001$ ) from baseline to 12 weeks. Symptom severity negatively predicted appropriate communication at the same time-point ( $r=-0.45$ – $-0.59$ ,  $p<0.001$ ). These results demonstrate that symptom severity was inversely related to appropriate communication. Women experiencing severe symptoms severity were less likely to report having appropriate communication about that symptom with their healthcare provider. This study underscores the need for healthcare providers to break the cycle of inappropriate symptom communication to ensure patients' symptoms are adequately discussed and managed throughout women's cancer experience. This study provides new evidence that patients with

high symptom severity may not communicate their symptoms with healthcare providers.

## SHARED DECISION-MAKING PREFERENCES AND PAIN CHARACTERIZATION IN PATIENTS WITH CANCER

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Cancer pain prevalence is high (52%–77%) with breakthrough pain flares and end of dose failure adding to patient suffering and increased health care utilization. Shared decision-making (SDM), incorporating patient-stated preferences, goals, and concerns, can foster comprehensive pain assessment (CPA) and improve pain outcomes. This study will evaluate SDM and CPA in patients with cancer to manage chronic and breakthrough pain. Eligible patients have pain or are taking opioids to manage chronic cancer pain. Patients complete a tablet-based survey at enrollment to record baseline pain and activity levels, pain flare severity and length, end of dose pain, and SDM preferences. Results are presented on an electronic dashboard and the provider and patient collaboratively establish a pain care plan. The effectiveness of SDM on pain outcomes will be measured with the Pain Care Quality Survey. Pain characterization is described for the first 43 patients enrolled, of which 42% (n=18) desire to share decision-making with the provider, while 35% (n=15) prefer to make the final decision after considering provider input. Patients are 57% (n=26) female with a mean age of 56 (range 20–93); baseline mean pain scores were 5.4 and overall distress scores were 5.43, (scale 0–10); 91% had a pain flare in the last seven days with mean severity of 5.53; 72% of flares lasted longer than 30 minutes. All patients had end of dose pain. Less than half (42%) have restricted activity and 23% manage self-care but cannot work. Participants reported more incident pain associated with certain activity (63%) as well as insidious pain, not associated with activity (65%). 43 patients selected 143 pain descriptors: burning (16), achy (24), sharp and stabbing (21), pins and needles (15), cramping (14) radiating (14), intermittent (19), and continuous (20). This is one of the first studies that examined SDM as a part of the pain management plan of care. The majority (77%) of patients desire SDM. Even though most patients were already taking

opioids at presentation, they had moderate pain and distress, frequent flares and end of dose pain, and limitations on activity level due to the pain. Baseline pain characterization with a drill down CPA offers opportunity to use SDM to develop effective pain care plans and measure outcomes.

### **EXAMINING MEDICATION BELIEFS AMONG PATIENTS RECEIVING ORAL ONCOLYTIC AGENTS USING A DERIVED MODEL OF SELF-REGULATION**

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Use of oral oncolytic agents (OAs) is increasing. Patients receiving OAs are responsible for self-managing their cancer care in the home environment. Medication beliefs have been associated with patient outcomes such as adherence, but less is known about the factors influencing medication beliefs across the cancer treatment trajectory. The purpose of this project was to examine medication beliefs among patients receiving oral oncolytic agents (OAs) using a derived Model of Self-Regulation. This study utilized secondary data from a National Cancer Institute-funded randomized controlled trial testing an intervention to promote symptom management and OA adherence. Patients receiving a new OA prescription were recruited from six Midwestern comprehensive cancer centers. Medication beliefs, symptoms, comorbid conditions requiring medication, depressive symptoms, and cognitive effectiveness were assessed at baseline, 4, 8, and 12 weeks. Medical record audits verified physician-directed OA stoppages and adverse events. Linear mixed effects models (LME) were used to relate each Beliefs about Medicine Questionnaire (BMQ) subscale to fixed explanatory and time-varying covariates. Least square means of the BMQ subscales were output from the LME and evaluated for change over time. A regression analysis evaluated the relationship of adverse events with the BMQ. A t-test determined differences in medication beliefs between those who experienced permanent OA stoppages and those who did not. Beliefs that OA medication was necessary increased over time. Higher concern for taking OA medication was associated with symptom severity/

interference, depressive symptoms, decreased cognitive effectiveness, and an increased number of chronic conditions requiring medications. Patients experiencing  $\geq 3$  adverse events had significantly lower beliefs that the OA was necessary compared to those experiencing 0–2 adverse events. Patients not experiencing a physician-directed OA stoppage had stronger beliefs that the OA was necessary compared to those who had experienced a physician-directed OA stoppage. Results support that necessity and concern for OA medication are influenced by different factors and are vulnerable to change over time. This study contributes conceptual clarity to the phenomenon of medication beliefs among patients receiving OAs. Findings can support oncology interventions to improve patient outcomes including oral medication adherence. Nurses should elicit medication beliefs at each clinic visit, especially when changes to the patient's health are noted. Screening medication beliefs can help weigh the benefits and risks of OA treatment.

### **CARDIOVASCULAR DISEASE AND THE MODIFIABLE HEALTH BEHAVIORS AMONG CANCER SURVIVORS AND THEIR SPOUSES: FINDINGS FROM MEDICAL EXPENDITURE PANEL SURVEY (MEPS)**

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Cardiovascular disease (CVD) is the leading cause of mortality among cancer survivors (survivors). For survivors in an intimate relationship, their spouses are also affected by the cancer and related stress. However, few studies examining CVDs and health behaviors have focused on survivors and spouses as a unit. This study aims to examine how CVDs and health behaviors of survivors and their spouses are related. We identified cancer survivors and their spouses (couples) from the 2011 to 2015 Medical Expenditure Panel Survey (MEPS). CVDs included hypertension, coronary heart disease (CHD), stroke, angina, heart attack, high cholesterol and other heart disease. The modifiable health behaviors related to CVDs included smoking, recommended physical activity (RPA), and Body Mass Index (BMI, proxy of healthy diet). Presence of CVDs and health behaviors were dichotomized. We analyzed the data with McNemar's test for agreement/congruence between survivor- and spouse-reported CVDs or health behaviors. We

identified a total of 1050 survivor-spouse couples. The congruence on incidence of CVDs ranged from 55% to 93% among survivors and spouses. However, significantly higher percentage of patients than spouses had hypertension, heart attack and diabetes (all  $p < .05$ ). Couples were congruent in their smoking and BMIs; approximately 85% couples were non-smokers and 63% were both obese. Higher percentage of spouses engaged in RPAs than survivors ( $p < .01$ ). Among male survivors, higher percentage of survivors than spouses had hypertension ( $p < .0001$ ), CHD ( $p < .0001$ ), angina ( $p < .05$ ), heart attack ( $p < .0001$ ), high cholesterol, diabetes ( $p < .001$ ), and obese BMI ( $p < .001$ ), and were smokers ( $p < .01$ ). Among female survivors, higher percentage of spouses had CHD ( $p < .001$ ), heart attack ( $p < .05$ ), high cholesterol ( $p < .01$ ), and obese BMI ( $p < .001$ ), and engaged in recommended RPA ( $p < .001$ ). The most common types of CVDs among both survivors and spouses were hypertension, high cholesterol, diabetes and other heart disease, regardless of the gender of survivors. This is the first study to quantitatively explore the congruence of CVD incidence and related health behaviors between survivors and spouses using a nationally representative sample. We found significant gender and role differences in CVD incidence and related health behaviors. Our findings suggest that cancer survivorship programs that aim to reduce CVD risks and improve healthy behaviors need to include both survivors and spouses.

## THE ROLE OF DIABETES ON THE SYMPTOM SEVERITY OF BREAST CANCER SURVIVORS

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Women with diabetes have a 23% higher risk of developing breast cancer than women without diabetes, and up to 33% of breast cancer survivors (BCS) have diabetes. Both diseases result in common symptoms affecting quality of life (QoL) including depression, anxiety, fatigue, pain, peripheral neuropathy, and changes in sexual, physical and cognitive function. Diabetes may exacerbate BCS' symptoms. As BCS are living longer, the role of comorbidities on their long-term symptom profile is important to address. The effects of diabetes on the symptoms of BCS has not been well studied. The purpose of this study was to examine the symptoms (depression, anxiety, sexual function, peripheral neuropathy, physical function, attention function, sleep disturbance and fatigue) of

BCS with and without comorbid diabetes. A secondary analysis from a large, cross-sectional study was conducted. Data were collected from 97 sites across the United States. BCS were stages I–IIIa, and 3–8 years post chemotherapy. Symptoms were measured using valid and reliable tools. Symptoms between BCS with and without diabetes were compared by independent t-tests then predicted by regression analyses. Because BCS with diabetes had significantly higher body mass index (BMI), we tested for interaction effects between diabetes and BMI. Of the 1127 BCS in the study, 121 (11%) self-reported a diagnosis of diabetes and 1006 (89%) non-diabetes. BCS with diabetes were older, had higher BMI, lower income and were less likely to be married than BCS without diabetes. BCS with diabetes reported poorer physical ( $p < .001$ ) and cognitive ( $p = .003$ ) function, and greater sleep disturbance (.026) and fatigue (.033) than BCS without diabetes. Covariates of age, BMI (overweight and/or obese), education and income status were statistically significant predictors for most symptoms. No interaction between BMI and diabetes was found. This study is one of the first to examine the symptoms of BCS with diabetes. Prospective studies are needed to examine the symptom profile of BCS with diabetes throughout the cancer trajectory. Oncology nurses are in a key position to assess and monitor BCS with diabetes for increased post-treatment sequelae. If problematic symptoms are identified, treatment plans can be implemented to decrease symptom burden and increase QoL.

## MENTAL ILLNESS AND BRCA1/2 GENETIC TESTING INTENTION AMONG MULTIETHNIC WOMEN UNDERGOING SCREENING MAMMOGRAPHY

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The identification of multiethnic individuals with mental illness who are eligible for *BRCA1* and *BRCA2* (*BRCA1/2*) genetic testing is of critical importance. Depression and anxiety are two leading mental health conditions that are associated with poor health and disability worldwide. In the U.S.,

anxiety disorders are the most common mental illness affecting 40 million adults age 18 years and older. Major depressive disorder (MDD) is the most commonly diagnosed form of depression affecting 16.2 million adults annually and the prevalence is higher among women. Furthermore, recent data suggests that MDD is highest among adults from racial/ethnic minorities. Individuals with mental illness are also at greater risk for poor health and inadequate health care access. Less is known about the psychological functioning of racial/ethnic minority women and its impact on intention to undergo genetic counseling and testing for *BRCA1/2* pathogenic variants. The purpose of this study was to examine associations between anxiety, depression, patient-reported mental illness, and *BRCA1/2* genetic testing intention among women undergoing screening mammography who met family history criteria. We conducted a cross-sectional survey study of high-risk women who were undergoing screening mammography at Columbia University Irving Medical Center (CUIMC). Descriptive statistics and multivariate logistic regression models were used to examine associations between mental illness and *BRCA1/2* genetic testing intention. Among 100 evaluable women, mean age was 60 years and 73% were Hispanic. The majority (76%) of the participants reported that they intend to have genetic testing performed, including 5% who were already tested. The prevalence of mental illness was high, with 36% having clinically significant depression and 36% with anxiety. In the multivariate analysis, no associations were found between mental illness and *BRCA1/2* genetic testing intention. Younger age and less education were associated with *BRCA1/2* genetic testing intention. Multi-ethnic high-risk women with a high prevalence of anxiety and/or depression had high intentions to pursue *BRCA1/2* genetic testing, but actual reported uptake of testing was low in our study. Mental illness was not a barrier to *BRCA1/2* genetic testing intention. Future research is needed to examine other competing barriers at the patient, provider, healthcare system level that may be influencing uptake of genetic testing for multi-ethnic high-risk women with mental illness who are undergoing screening mammography.

## COMPUTERIZED COGNITIVE TRAINING IN BREAST CANCER SURVIVORS

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For millions of cancer survivors, cognitive dysfunction is a prevalent, severe, and persistent problem that is associated with poorer quality of life. Unfortunately, the scientific basis for managing these cognitive changes in cancer survivors is extremely limited. Available evidence from pilot studies, including work by our own group, suggests that computerized cognitive training, which is based on the principles of neuroplasticity (ability of brain neurons to re-organize and form new neural networks), may be a viable treatment option. However, previous trials have been limited by their designs (failure to have attention control comparison), delivery (failure to offer in the home) and lack of inclusion of a response biomarker such as brain derived neurotrophic factor (BDNF), which we now know is associated with neural plasticity. The purpose of this 2-group, double-blind, randomized controlled trial is to test the feasibility, satisfaction, and preliminary efficacy of a computerized home-based cognitive training program compared to attention control in breast cancer survivors (BCS) as well as to explore potential biomarkers of intervention effects. A total of 68 eligible BCS will be randomized to computerized cognitive training or attention control. A blinded and trained tester will perform data collection and neuropsychological testing at two time points: baseline prior to intervention (T<sub>1</sub>) and immediately after the 10-week cognitive training program (+/- 7 days) (T<sub>2</sub>). Feasibility and satisfaction will be assessed through objective indicators (study adherence, completion rate) and self-report (facilitators, barriers, and perceived satisfaction) and cognitive performance will be assessed through objective neuropsychological tests. In addition, we will measure the effects of cognitive training on self-report measures of perceived cognitive function, associated symptoms (depressive symptoms, anxiety and fatigue), perceived work ability, and quality of life. Data will be analyzed using descriptive statistics and a general linear mixed model (GLMM). Simple main effects analyses will be used to follow up statistically significant interactions. Preliminary results of this trial will be presented, including an assessment of treatment fidelity measures used in this intervention trial. This work will represent the first rigorous trial of computerized cognitive training delivered in the home to BCS. Positive or negative study findings will provide empirical evidence for clinicians' recommendations and survivors' treatment selections for managing cognitive impairment in BCS.