

# Podium Abstracts

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## ADVANCED PRACTICE

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### THE SYMPTOM MANAGEMENT UNIT: AN NCI DESIGNATED CANCER CENTER'S RESPONSE TO REDUCING ED ADMISSIONS DURING COVID-19

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Patients with cancer have poorer outcomes with the novel coronavirus (COVID-19) due to weakened immune systems resulting from cancer and cancer treatment, as well as older age and comorbidities. In response to COVID-19, an NCI-designated Comprehensive Cancer Center in the southwest identified the need to reduce avoidable emergency department (ED) visits for cancer patients to reduce the risk for COVID-19 exposure. Prior to the pandemic, if Infusion could not treat same day add-on patients for symptom management, they were sent to the ED for management. To reduce unnecessary ED visits and lessen the risk of COVID-19 exposure for oncology patients, a Symptom Management Unit (SMU) was created to provide outpatient care for the treatment of acute illnesses to established Cancer Center patients. A review of data related to Cancer Center patients' use of the ED found most visits occurred when outpatient clinics were open. Based on this, the SMU hours were established Monday–Friday, 7:00 am until 5:00 pm. An Advanced Practice Provider (APP) was assigned to the SMU daily and patients were treated in partnership with their primary oncologists. An assessment of existing space identified an infusion area where patients could be managed, with staffing provided by Infusion certified medical assistants and registered nurses. A phone number for SMU was provided and patients were referred by the primary teams. A multidisciplinary team including nursing, physicians, pharmacists, billing specialists and Cancer Center leadership were involved in daily and weekly briefings to continually improve the process for patients. The SMU was open from March 16, 2020 to July 31, 2020. Seventy-three patients were evaluated. Eleven patients were directly admitted to the hospital from the SMU; five transferred to the ED, with four admitted to the intensive care unit. Diagnoses included dehydration, nausea/vomiting, diarrhea, Adrenal Insufficiency,

electrolyte imbalances, and anemia. To standardize patient care across providers institutional order sets and guidelines were developed. Oncology practices and cancer centers without a designated oncology urgent care clinic can identify a symptom management area and through a multidisciplinary team, develop training, protocols and clinical pathways to reduce patient ED utilization and increased risk of COVID-19 exposure. The SMU was implemented without hiring additional FTEs.

### TELEHEALTH IN GERIATRIC ONCOLOGY: AN ADVANCED PRACTICE NURSE (APN) LED CLINIC APPROACH TO IMPLEMENTING A GERIATRIC ASSESSMENT DURING COVID-19

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The coronavirus pandemic (COVID-19) places older adults (OA) with cancer among a high-risk group to develop severe symptoms. The population of OA with cancer is growing at a disproportionate rate and an innovative delivery of care is needed. During the pandemic the Advanced Practice Nurse (APN) led geriatric consult clinic utilized the electronic medical record (EMR) to conduct a geriatric assessment (GA) and implement geriatric oncology interventions via a telehealth platform. The APN led clinic provides a holistic approach to geriatric oncology and is based on ASCO and NCCN guidelines. The goal is to provide an innovative approach of care for OA with cancer utilizing an EMR and telehealth platform and compare to usual care. Each patient 65 and older was offered a traditional in person clinic visit (usual care) or a tele-video visit through the hospital's telehealth platform beginning March of 2020 (Mar–Dec 2020, N=50) in response to COVID-19. All patients were sent the self-administered GA via the EMR. The GA was completed prior to the visit or the patient was assisted with completion during the visit. Each component of the GA was reviewed during the visit to address the needs of the OA with cancer. Based upon the results of the GA the APN provided interventions. Preliminary data to review clinical outcomes between telehealth and usual care is being extracted from the EMR to compare the telehealth platform with usual care. This will assess: 1) domains of the GA (mobility, cognition, nutrition, etc.), 2) completion of interventions, and

3) family/caregiver participation during visits. During COVID-19 strict visitor policies limit the ability of patients to have family members present during in person visits. Telehealth is an approach to bridge this gap and decrease the risk of COVID-19. The GA offered as an option via telehealth provides a forum for both the patient, family/caregiver, and APN to facilitate communication. We anticipate no difference in provision of care for the OA with the utilization of the GA via telehealth versus usual care, thus demonstrating its equivalence to usual care. An APN led clinic via telehealth is an innovative, safe approach to implement a GA, facilitate communication, and provide care for the OA with cancer.

### IMPLEMENTING AN ADVANCE PRACTICE PROVIDER DRIVEN ONCOLOGY VIRTUAL CLINIC

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Enhancements in the electronic medical record have led to the development of applications that increase provider access. This perceived immediate access is not always managed efficiently to meet clinical needs and patient expectations. At four community-based hospitals, in an island state, a patient to provider communication process via EPIC MyChart was initiated to allow for medical advice questions. The practice contained eight adult medical oncologists, six clinics with support staff, and covered three islands across the state. The program was managed by medical assistants with an expectation of response within two business days. On review, major variances were discovered. Response times ranged from 25% to 71% monthly. The purpose of the quality improvement project was to develop an Advanced Practice Provider driven oncology virtual clinic to improve response times to medical advice questions and ensure provider response. Aims also included increasing Advance Practice Provider autonomy, improving collaboration with physicians, increased patient satisfaction and ensure evidenced based cancer care. Primary intervention included developing an Advanced Practice Provider oncology EPIC pool. Each day, one primary Advanced Practice Provider managed all medical advice questions directed to the eight oncologists. They would assess and respond to the patient via MyChart, schedule an immediate virtual visit, contact patient, or schedule an immediate live visit in clos-

est clinic location to the patient. Results revealed the Advance Practice Provider Driven Oncology Virtual Clinic responded to an average of forty messages a day. In the first month, the providers responded to over twelve-hundred messages. The average time of response was six hours. Advanced Practice Providers reported need for clinic visit reduction to support the virtual clinic. 100% of all messages were managed within the program goal of two business days. Patients and oncologists report success with the program. Implications for patient outcomes has been decreased anxiety, increased patient satisfaction, and decreased emergency room visits. This project met the goal of developing an Advanced Practice Provider driven oncology virtual clinic to improve response times to medical advice questions.

### APP CHALLENGES DURING COVID-19: HOW WE WEATHERED THE PANDEMIC

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The COVID-19 pandemic has changed the face of oncology care delivery, leading to immediate changes in models of care in a large academic medical center/comprehensive cancer center in the Northeast. During Covid, (3) inpatient units were relocated to accommodate Covid-19 patients throughout the health system. In addition, the medical staff was deployed from oncology inpatient services to care for COVID-19 patients on medicine units. As a result, oncology fellows were deployed to care for our inpatient oncology patients. Fellow responsibilities in ambulatory oncology care and after hours telephone calls were re-assigned. During this time, we implemented a Rapid Evaluation Clinic with the primary objective of evaluating oncology patients with Covid-like symptoms. Many of our ambulatory clinics were moved to our Care Centers across the state to accommodate Covid positive patients throughout the health system. The purpose of this project to discuss the changes, challenges, and coordination of oncology APP responsibilities during the COVID-19 pandemic. Changes in APP responsibilities were addressed expeditiously in this rapidly evolving pandemic. The Rapid Evaluation Clinic is an APP driven clinic with coverage 7 days per week from 7A-7PM. This was an unbudgeted position and oncology APPs were deployed. With the relocation of Ambulatory teams, there were more infusion areas needing APP coverage. To maintain social distancing, space constraints, and patient safety, working remotely and Telemedicine visits were implemented. The APPs worked remotely about 50% of scheduled

hours and about 50% of patients were seen via Telemedicine. APPs needed to master the new technology and approach to evaluating patients remotely. The APPs assumed responsibility for after hour telephone calls, 7 days a week from 5PM-8AM. Scheduling has been successful in ensuring adequate APP coverage of all ambulatory and inpatient areas. Information Technology (IT) was implemented quickly with the appropriate training and education. Despite challenges during Covid, the pandemic enhanced the camaraderie, support, and team building within our oncology service line, from all members of the team. During the unprecedented time, the Oncology APP community went above and beyond to ensure patients had the same level of care as before Covid. Their flexibility and resilience was unyielding.

### **GENTLE YOGA AS AN INTEGRATIVE MODALITY FOR ADULT CANCER SURVIVORSHIP**

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Advances in cancer treatment are allowing cancer patients to live longer with no evidence of disease or with stable advanced cancer while continuing maintenance treatment. Recommendations promote integrative modalities, such as acupuncture, music therapy, massage, and gentle yoga for pain and symptom management in adult cancer survivors. Gentle yoga (breathing, meditation and gentle stretching exercises) is associated with improved emotional well-being, anxiety, sleep disturbances, fatigue and musculoskeletal symptoms associated with aromatase inhibitors, chemotherapy and radiation. This clinical initiative implemented a clinical practice guideline (CPG) for a formal evidence-based recommendation of gentle yoga as an integrative modality in the management of complex symptomatology in adult cancer patients in the outpatient Palliative Medicine Clinic. The gentle yoga CPG included smart phrases for a gentle yoga exercise prescription and after-visit summary patient education instructions shared through the electronic medical record (EMR) with prescribing clinicians. The clinician outcome was the number of exercise prescriptions for gentle yoga per provider. Participants agreed to 1) attend 12 classes in 12 weeks, 2) obtain documentation of class attendance and 3) follow-up in clinic. Each participant received a writ-

ten, signed exercise prescription, class tracking card and written patient education instructions verbally reviewed by the nursing staff at clinic discharge. The patient outcome was the number of classes attended per participant. Twenty-eight outpatients (13 men and 15 women) with stable chronic cancer pain were offered a formal recommendation for gentle yoga from October 2019 through January 2020. Patients were predominantly white (70%) with ages ranging from 45-65 years of age. Six participants (5 male) completed a mean of 10 gentle yoga community classes. One participant commented that the gentle yoga stretches helped their neck pain and "makes me feel good about myself". Another participant believes gentle yoga helps them combat chemo side effects and reduces stress and anxiety. The majority of the exercise prescriptions were prescribed by nurse practitioners (95%). Adult cancer patients with pain and other symptoms can benefit from formal recommendations for gentle yoga. An EMR written exercise prescription is a viable process for recommending gentle yoga. Gentle yoga has been studied mostly with breast cancer patients. This initiative offered recommendations to head and neck, lung, rectal and breast cancers allowing more male participation.

### **INCREASED ACCESS TO SURVIVORSHIP CARE PLANS IN PRIMARY CARE SETTINGS VIA AN APP: IMPACTS ON PATIENT ENGAGEMENT AND QUALITY OF LIFE: A PILOT PROJECT**

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The number of cancer survivors in the United States is growing. The transition from cancer treatment to long-term follow up is complex requiring customized patient-centered care. The Survivorship Care Plan (SCP) improves health related quality of life (HRQOL) and patient health engagement (PHE). However, not all cancer survivors receive a SCP nor are primary care providers aware of their availability, particularly in rural settings. The purpose of the project was to assess the impact of implementing an evidenced-based Internet application (app) in a rural primary care setting on patient HRQOL and PHE. Patient specific SCPs were developed using the American Cancer Society's App and reviewed with the patient. Recommended screenings and/or tests identified by the app were addressed by the APRN. The project was based on Watson's Theory of Caring Science. Participant HRQOL and PHE surveys were assessed

before and three months after the intervention. Half of the sample had been diagnosed >5 years prior, half were female, and half had been diagnosed with prostate cancer. None of the eight participants had received an SCP from the oncology setting and felt the use of SCP in a primary care setting was appropriate. Overall, HRQOL was higher after intervention in 50% of participants. PHE had no change from baseline. Every participant had at least one recommendation that was previously unknown to them. Cancer survivors in rural settings tend to transfer care to their primary care provider after cancer treatment thus increasing the importance and value of the SCP in a primary care setting. The ACS Survivorship Care Guidelines App was an effective approach to create SCPs to improve survivor outcomes in a primary care clinic. This project addressed the gap in the transition of care from oncology to the primary care setting through the initiation and implementation of SCPs by rural primary care providers.

### **DEVELOPMENT AND IMPLEMENTATION OF AN ONCOLOGY NURSE PRACTITIONER FELLOWSHIP WITHIN AN ACADEMIC MEDICAL CENTER**

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The nurse practitioner (NP) role is an essential and vital contribution to multidisciplinary oncology practices. Given the specialization of an oncology provider, investment in effective onboarding is essential to ensure clinical competency and ultimately high quality cancer care. Nurse practitioner fellowships serve to bridge the gap of basic provider training to specialty clinician. The purpose of this project was to develop and implement a certified NP fellowship and successfully transition novice NPs into oncology practice at Vanderbilt-Ingram Cancer Center. The Principles of Transition Theory guided development of this oncology NP fellowship model to effectively transition fellows into proficient oncology providers. Program objectives included: acclimation to the cultures, values, and standards of the practice setting; develop proficiency in the Oncology Nursing Society competencies for the oncology NP; hone skills to manage time and

stress successfully, communicate effectively, problem-solve efficiently, and think critically; and enhance professional and lifelong learning skills and knowledge to advance oncology nursing. Benchmarks for evaluation included: be a valued oncology care team member and interdisciplinary colleague; earn the Adult Oncology Certified NP designation; increase the self-confidence and perceived self-competence; establish a patient panel; be retained at the organization and; increase patient satisfaction; maintain patient safety. Outcomes-focused assessments were conducted at baseline, three-month, six-month, as well as at completion of designated clinical rotations and completion of the fellowship. Over 12 months, the fellows gained self-confidence and successfully transitioned as competent to proficient oncology NPs. Both fellows were hired into permanent positions within oncology. Oncology fellowships transition NPs into specialized practice, preparing providers with advanced knowledge and clinical competency. These fellowships require a comprehensive and interprofessional approach to strategic planning, goal setting, training, implementation, and evaluation. The recommendations and strategies described in this program may promote optimal learning and training for NPs transitioning into practice. Oncology specialties should consider arming program development with NP fellowship programs to build and sustain measurable, competency-based programs that support effective oncology training for advanced practice nurses. This oncology NP fellowship was the first to be implemented in the state of Tennessee. Our findings support expansion of oncology NP fellowship programs and outline recommendations for other health care specialties.

### **UNDERSTANDING FAMILY HISTORY OF CANCER: EMPOWERING CRITICAL THINKING AMONG COMMUNITY HEALTH CARE PROVIDERS**

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Research shows that minority and underserved women with a family history of cancer are less likely to have access to genetic testing to help guide surveillance and management. Outreach to community and public centers using limited resources has been limited and unsustainable. The purpose of this project is to provide an opportunity for women in community and public health centers to have access to genetic risk assessment, education, testing and follow-up management based on NCCN guidelines. Our project

was initiated with a CDC grant, but when the grant funding ended, early recognition of the value of the project led to the decision to provide support under another program. An Advanced Practice Nurse in Oncology and Genetics provided education and guidance to nursing staff who included targeted family history questions into the assessment of each woman entering the system for women's services. Education included cancer risk factors, cancer syndromes, NCCN guidelines, financial resources and support for testing and follow-up care. Over time, with support from the Advanced Practice Nurse in Oncology and Genetics, the staff has developed their critical thinking skills and become more proficient at identifying women appropriate for additional education and testing. As a result, the number of women evaluated for cancer risk has remained relatively constant, but the individuals identified at higher risk and resulting in identification of pathogenic mutations has increased. This has led to earlier identification of cancers through heightened surveillance protocols for clients and their families. This program provides evidence that with additional support and education, the nursing staff in the community and public health sectors can identify individuals at higher risk for cancer due to family history and facilitate their access to genetic education, testing and follow-up. Community and public health centers are already a trusted source for primary care and referral to nearby resources. With this process, access to genetic testing for the minority and underserved can be enhanced and sustainable.

### **IMPLICIT BIAS RECOGNITION AND TRAINING: IMPROVING OUTCOMES FOR PATIENTS WITH CANCER AND ADDICTION**

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Addiction in oncology patients is not well described; a recent systematic review reported substance use rates ranging from 2–35%, with median use rates of 18% for opioids and 25.5% for alcohol. Stigma is often associated with undesirable stereotypes, negatively impacting the quality of care delivered, as well as health outcomes. Health care providers have both explicit and implicit (unconscious) bias towards patients with substance use disorders (SUD) and may experience moral distress based on disapproval of these “behaviors.” Research validates recognition and management of implicit bias are useful strategies for bias reduction among health care providers. Studies have revealed

implicit bias contributes to disparities and barriers to care and results in poor outcomes. A hospital-wide survey was conducted to characterize baseline experiences and critical knowledge gaps. Results of nurses and Advanced Practice Providers (APPs) from two questions focusing on bias and health outcomes are reviewed. The sample included 518 registered nurses and 180 APPs (advanced practice nurses and physician assistants). Less than half (44.9%, n = 216) of nurses disagreed with this statement: “I am certain that stereotypes or bias do not impact the quality of care patients receive.” Slightly more APPs (54.9%, n = 95) disagreed, meaning stereotypes and bias do negatively impact health outcomes. More than 70% of nurses (n = 345) and 55% of APPs (n = 95) agreed, “I am certain I treat all persons the same, regardless of current/past opioid use disorders.” These results identify a knowledge gap related to implicit bias relationship with health outcomes. Facilitating implicit bias recognition and training is a continuing professional development opportunity that allows providers to enrich knowledge and skills, promoting high-level effective patient care. Outcomes-based educational approaches are considered more effective at improving practice and may be viewed as a translational science communication option. Implicit bias recognition and training will potentially transform oncology care by promoting universal, unbiased recognition, management, and care. Harm reduction strategies would be more likely to be successfully implemented. Enhancing compassion and understanding removes barriers created by stigma, improves the quality of care, and may improve outcomes for patients with cancer and a SUD. The idea is unique—no alternative currently exists in oncology.

### **ADDRESSING ORGANIZATIONAL ENGAGEMENT GAPS: A PILOT PROJECT FOR ONCOLOGY ADVANCED PRACTICE PROVIDER GRAND ROUNDS**

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Advanced practice providers (APPs; Nurse Practitioners and Physician Assistants) are key contributors to the delivery of quality cancer care. With expanding practice roles in settings providing more complex patient care, it is important to provide oncology APPs

opportunities for professional development, education, and networking at their place of employment and as a possible retention strategy. This is also important when considering the need for on-the-job training for new hires and the variability or lack of formal oncology training in education programs or clinical experience. A previous internal APP survey at this organization identified that further APP-specific development programs were desired. The purpose of this project was to determine if monthly Grand Rounds for oncology APPs would be feasible and yield a satisfactory option in providing professional development and networking opportunities. Needs assessment results indicated that a total of 75% (n=25) somewhat or strongly agreed they would like their employer to offer more professional development opportunities and 87.5% (n=28) somewhat or strongly agreed they were interested in attending Grand Rounds. Grand Rounds was a six-month pilot project entailing a needs assessment survey, coordination of speakers, and scheduling of three, one-hour monthly education sessions, followed by a post-assessment survey. Content-expert speakers were recruited based on the needs assessment survey results. Grand Rounds were performed virtually since in-person meetings were restricted due to the COVID pandemic. All three sessions met the project goal for a 10% attendance rate, 71.4% (n=25), 57.1% (n=20), and 34.2% (n=12) respectively. For those that attended Grand Rounds, satisfaction with professional development opportunities offered by the employer did increase. Opportunities to network with other APP colleagues, although rated high, did not increase which was likely affected by the COVID pandemic restricting in-person sessions. Competing meetings and time away from patient care were the most reported barriers for not attending. In conclusion, Grand Rounds offered an opportunity for professional development and networking and was feasible to schedule in a COVID environment. Healthcare organizations need to address barriers to engage oncology APPs in professional development opportunities to enhance skills and knowledge. There is need to further explore the impact on satisfaction and retention in the ever-evolving practice of oncology.

### **IMPLEMENTING A NURSE-LED SURVIVORSHIP TRANSITION PROGRAM FOR CHILDHOOD CANCER SURVIVORS**

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As cancer therapies improve, the population of childhood cancer survivors continues to increase with more survivors experiencing long-term health complications that require specialized care. Survivorship care should focus on prevention and treatment of late effects and screening for secondary malignancies throughout their lives. Adolescent and young adult survivors are often lost to follow-up as they transition from a pediatric cancer center to the adult health care services. In 2018, the Children's Survivorship Clinic and Nebraska Medicine Survivorship Clinic identified an opportunity to improve survivorship services for young adult cancer and transplant survivors transitioning to adult care. The purpose of the Survivorship Transition Program is to provide a seamless transfer of patient care through a collaborative, shared care approach between pediatric and adult care teams. Collaborating pediatric and adult survivorship team members developed the transition program for young adults ages 19–21 years and at least 2 years off therapy. The team focused on introducing care transition before approaching the age of 19, allowing for patient and family members to learn of the transition program sooner. The Survivorship Transition Program includes a shared visit where the patient is seen by both the pediatric and adult survivorship care team member, ensuring a smooth transition of care. The adult survivorship team begins to focus attention on screening for late and long term effects, establishing a primary care physician, and assists with transitioning to adult sub-specialists. Over the last two years, 46 young adult patients have been transitioned to the adult survivorship program. All patients were provided with an updated written treatment summary and survivorship care plan and adhered to yearly visits for recommended Children's Oncology Group Survivorship Guidelines. In addition, each patient was also set up to establish care with an adult primary care provider. A nurse led team of APRNs and nurse case managers implemented innovative strategies along the continuum of care through the development of the Survivorship Transition Program. The shared patient hand-off promotes patient and provider relationship building which improves adherence to appointment follow-up care and surveillance of long term side effects. Patient individualized treatment summary continuity between programs encouraged successful continuity of care and decreased potential gaps in care.

## **VIRTUAL CANCER SURVIVORSHIP CELEBRATION DURING COVID-19**

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Cancer centers across the country look forward to commemorating cancer survivors during the month of June by holding annual events to celebrate, educate, support and increase awareness about life after a cancer diagnosis. With the emergence of the covid-19 pandemic, traditional face-to-face events were cancelled and necessitated a rapid change in the way we provided programs to our cancer survivors. Cancer survivors deserve to be celebrated all year round and especially during this difficult time. Therefore, we transitioned our survivorship events to a virtual platform to ensure safety of our patients and reduce the spread of infection. Technological innovations in the digital space were embraced by offering virtual webinars featuring mindfulness and meditation, the importance of exercise, classes on cooking, restorative yoga, and multiple options for social media engagement. While in-person events were the norm prior to covid-19, they had their own barriers such as cost and accessibility. Alternatively, utilizing technology for virtual options was shown to be very attractive to patients and the institutional budget. We were able to provide an increased number of education seminars to our cancer survivors at no cost to the institution. In addition, there was an uptake in utilization of other resources due to promoting the virtual platform. Our Cancer Survivorship Program webpage, which was the central site for the events, saw an increase in traffic with over 2,000 unique webpage views. This encompassed survivors from across 10 different states including Nebraska, Iowa, Missouri, Virginia, Illinois, California, Minnesota, Arizona, Kansas and Wyoming. Our institutional Facebook page saw record engagement on their inspirational posts featuring cancer survivors and their journey with nearly 5,500 likes, comments or shares. The virtual events allowed participation irrespective of location which is valuable when our cancer center treats a largely rural population. Virtual events should be considered moving forward as they allow our vulnerable cancer survivors to learn and celebrate from their own homes while promoting engagement with family and friends afar.

## **NURSING CARE IN BRAZIL IN FRONT OF THE PROCESS OF DEATH/DYING IN ONCOLOGY**

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In this study, the theme of the death / dying process experienced by cancer patients was approached from the perspective of nursing, having as theoretical framework the studies of Elizabeth Kübler-Ross who was the pioneer in describing the emotional attitudes and reactions raised by approaching death in terminally ill patients. The objective of this project was to describe nursing care in the face of the death / dying process of patients in oncology. Methodology: integrative literature review with a qualitative approach to data and content analysis according to Laurence Bardin. The search was carried out in the online database of the Virtual Health Library of Brazil (BVSsalud), crossing the descriptors: Death, Nursing care, Oncology. The first search resulted in 227 articles. From these we separated those with the full text available online and found 32 articles. Then, only those that were directly related to the objective of the study were selected, reaching a total of 11 articles that then formed the sample. It was observed in the studied literature that nursing care in oncology facing the patient in the death / dying process is a daily challenge in dealing with the patient's worsening state, acceptance, fear, anxiety and trust, taking care of the patient out of the possibility of cure, but not out of the possibility of care. This study presented a body of knowledge about the death / dying process experienced by patients hospitalized in Oncology Units from the perspective of nursing, which tends to technical assistance, fragmented and impregnated by rules and routines to the detriment of the essence of human care, in favor of a process of death and dying with dignity. Brazilian Nursing in oncology believes that providing a good death is to provide nursing care with dignity and respect, a termination with minimal suffering and without pain.

## **IMPLEMENTING A NURSE-LED ONCOFERTILITY/REPRODUCTIVE HEALTH EDUCATION PROGRAM**

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Cancer treatment can affect a patient's ability to

have children. The risk of infertility varies depending on age, stage of development, type/extent of surgery and type/dose of treatment. Adult survivors of adolescent and young adult (AYA) cancer report distress regarding infertility risk (IR). Numerous studies have concluded the rate of documentation regarding IR and options for fertility preservation (FP) is low, in part due to gaps in provider knowledge. In 2019, the Nebraska Medicine Adult and Pediatric Survivorship Clinics identified an opportunity to improve Oncofertility services for AYA patients. The purpose of this intervention is to improve quality of IR/FP services through identification, documentation and referral to Reproductive Endocrinology & Infertility (REI) specialists. A literature review determined current best practices and a chart review established gaps in documentation. Best practices include improvement of referral pathways and targeted provider/patient education. Baseline chart review from April 2019 to March 2020 revealed 233 AYA patients. Of those receiving chemotherapy, 76% had electronic medical record (EMR) required IR/FP documentation. 43% had documentation within the progress note or on the patient education. One year prior to implementation, four females and six males were referred. Discussions with two local REI teams included procedure timelines, semen sample guidelines, fertility risk, communication, and online/financial resources. Best practices were implemented for our institution. Three Advanced Practice Nurses (APN) & one registered nurse completed an Oncofertility training program. Two EMR documentation templates were created. Advance practice providers (APP) offered IR/FP visits. Grand Rounds and a resource card provided targeted provider and nursing education. The AYA patient education intervention crossed both the adult and pediatric teams at two academic institutions. Two weeks after provider grand rounds, four female referrals were made showing steep improvement. Each patient received recommended IR/FP discussion per American Society of Clinical Oncology guidelines and coordinated care between the Medical Oncology and REI teams from a trained APN ensuring timely, efficient referral. Ongoing data collection includes number of referrals and a post-intervention chart review. A nurse led team implemented an innovative adult and pediatric Oncofertility intervention to improve provider education, standardize documentation and streamline referral. These interventions had a positive effect on young cancer patient's ability to protect their fertility prior to cancer treatment.

## CLINICAL PRACTICE

### RADIATING KNOWLEDGE: MULTI-MEDIA RADIATION ONCOLOGY EDUCATION PROGRAM FOR HEMATOPOIETIC STEM CELL TRANSPLANT (HSCT) NURSES

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Patients undergoing radiation face a myriad of challenges—from physical to psychosocial—requiring interdisciplinary collaboration to provide holistic, effective care. Oncology patients receiving targeted intravenous radiation therapy prior to Hematopoietic Stem Cell Transplant (HSCT) deviates from typical pre-transplant treatment, creating novel educational needs for the nursing team. Based on Piaget's Theory of Constructivism, HSCT nurses at an urban academic medical center challenged themselves to become content experts, creating a multi-media education program based off of current knowledge and past experience. The purpose of this initiative is to improve nursing team knowledge by 15% prior to caring for a radiation patient on an inpatient HSCT unit. Prior to education, nurses completed a baseline knowledge analysis. This 10-question quiz tested basic knowledge of caring for a radiation oncology patient. As nurses complete the baseline knowledge analysis, nurse content experts facilitated the development of radiation task forces, aimed at creating multi-media education resources for interdisciplinary team reference. After the baseline test window closes, nurses will begin the education program. The education program includes: interdisciplinary radiation safety PowerPoint presentation with the radiation oncology department, provider-led video lecture on radiation treatment course, daily radiation "quick facts" presented during morning huddle by nursing, and nurse-created education resource binder. To evaluate the effectiveness of the interventions, we will conduct knowledge analysis at the following time periods: prior to education and bi-weekly throughout the education time period. Every learning checkpoint will be required to have 100% nurse compliance. When introducing a new practice, it is essential to offer education in different formats to cater to the unique learning styles of the nursing team. Drawing from learning theories, the creation of a peer-led learning program promotes autonomy in nursing practice therefore, elevating the role of the bedside nurse.

## DAILY COVID-19 CALL MONITORING IN ONCOLOGY PATIENTS

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At the onset of the COVID-19 pandemic, the need for a Rapid Evaluation Clinic (REC) for oncology patients with concern for COVID-19 was identified. After operationalizing the clinic, it became apparent that patients stable for discharge home could benefit from daily phone calls. An initial report identified 62 oncology patients who were either COVID-19 positive or symptomatic with pending results in the ambulatory setting. Oncology nurses were redeployed to staff a call center specific to oncology patients across the health system. The call center was initiated to provide daily symptom monitoring to patients at home and recommend disposition. Nurses would assess subjective symptoms independently and based on symptom severity, and following a triage algorithm determine that patients could remain at home, be referred to a telehealth appointment with their oncologist, present to the REC, or be referred to their local ED. The goal was to keep patients safely at home with monitoring in order to minimize exposing others to COVID-19 as well as decrease risk of nosocomial infections related to hospitalization. Daily patient lists were generated based on geographic location and diagnosis to identify oncology patients who were COVID-19 positive or with a test pending. A templated note was created to standardize assessments, documentation, and disposition. This note was then routed to the oncologist for awareness and targeted follow-up. A core component of the daily calls was to provide education to patients on COVID-19 isolation precautions according to CDC recommendations regarding quarantine and strategies to minimize the risk of transmission to others at home. The nurses educated the patients on self-monitoring to identify improvement or worsening of symptoms. At a minimum of 14 days from illness onset or with a negative test result and resolution of symptoms, nurses could discontinue daily calls. After five months, 855 daily monitoring calls were completed. The majority of patients were recommended to remain at home and continue self-monitoring. In order

to contribute to objective symptom monitoring, next steps include implementation of home pulse oximetry. This project demonstrates that a daily call from a nurse can keep oncology patients with COVID-19 safely at home. Ongoing data will illustrate how many COVID-19 oncology patients required hospitalization compared to those who were able to remain safely at home with remote nursing monitoring.

## DEVELOPING AND IMPLEMENTING A NURSING ASSESSMENT IN A PRIVATE PRACTICE SETTING

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The nursing process is used in all patient care settings. One vital step in the process is assessment, but while hospital based practices perform and document assessments with each patient contact many private practices do not include this in their documentation. In order to advance the role/value of nursing and nursing care within our multisite private practice, one of our goals for the year was to develop a nursing assessment tool for our EMR and implement its use in the daily nursing workflow. A number of nursing assessment tools were identified and evaluated for practicality and effectiveness in a busy private practice. Our Nursing Leadership Team and Quality Improvement Committee worked to establish a template that would best meet our needs. Working closely with IT, we incorporated into our EMR. A test version was piloted for 3 months and nursing was invited to trial the tool and offer input. The assessment tool went live and was incorporated into the nursing workflow beginning with the smaller practices and is currently being integrated into the patient care model in the three largest practices within the system. To assist in documentation the flow sheets were printed out and encased in plastic with a dry erase pen attached, so the nurses could make notes at chairside during for transcription into the EMR and then reuse the tool as needed. Once the nurses began using the tool they became enthusiastic about the ease and efficiency of documenting their assessments and they perceived an improvement in patient care due to the increased in depth assessments. The implementation of the system will be reevaluated on a three-month basis and adaptations to the system will be incorporated if needed. When the assessment has been fully incorporated throughout the system, we will evaluate for a change in patient satisfaction. We will begin to evaluate our Nursing Discharge Instructions to com-

plement the assessment and capture any areas of concern. This project has led to an improvement in both nursing care and the perception of the nurse's role and value throughout the Alliance System, improving both patient and professional relationships.

### **OPTIMIZING INFUSION CHAIR UTILIZATION BY IMPLEMENTING FAST TRACK, MID TRACK AND LONG TRACK ASSIGNMENTS**

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Infusion room chair availability was problematic due to inconsistent appointment scheduling, infusions running over time scheduled, and immediate infusion add-ons. Frequently, patients scheduled for quick injections were waiting 30–45 minutes for chair availability. These care delays created frustration for both nursing staff and our patients. The purpose of this project was to help decrease infusion wait time for patients that are receiving shorter infusions/injections by grouping patient assignments based on chair time. Our staff team began grouping patients into three infusion categories: 1 hour or less, 2–3 hour, and greater than 3 hours. These groups became known as Fast Track, Mid Track, and Long Track respectively. Next we employed a team nursing approach with our Fast Track and Mid Track patients. At first, we utilized a spreadsheet to layout patient assignments for each track to ensure chair availability. The Long Track patients were assigned to a primary nurse. We incorporated the LeanTaaS team to set up the three patient assignment tracks in the iQueue Nurse Allocation Tool. This is utilized daily to generate balanced nursing assignments in each track. Chair time was measured using LeanTaaS data and patient satisfaction was measured using Press Ganey Scores. Since implementation of Fast, Mid, and Long Track assignments in March 2020, there has been a decrease in chair wait time. The average wait time for Fast Track infusions was reduced by 50%, from 40 to 20 minutes. All tracks have averaged time reduction of 15 minutes. There has been an increase from 96.5% to 99.3 % in patient satisfaction on Press Ganey scores from June 2019 to May 2020. This has been a great success for the infusion room staff and patients as all benefit from time saved. Confirming that the patient is scheduled correctly ensures that the patient will get the right track chair assignment and have their infusion/injection administered at their appointment time. This system can be easily replicated in community and academic infusion centers.

### **SUPPORTIVE CARE PATHWAY: IMPROVING SLEEP IN CANCER PATIENTS**

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Sleep disturbance is a well-known side effect of cancer treatment, impacting upwards of 75% of oncology patients. Sleep disturbance can have a profound impact on a person's physiological and psychological functioning. This ongoing problem can persist not only during the treatment phase of a patient's journey, but into survivorship as well. Supportive care pathways were developed to provide evidence-based decision trees to guide supportive measures of cancer related symptoms not previously covered by the National Comprehensive Cancer Network's (NCCN) guidelines. Sleep is an example of one of these pathways, which provides assessment, interventions, and evaluation of symptom management as well as patient education. The sleep pathway is useful for patients on active treatment as well as those who have completed therapy and are seen at survivorship visits. As a comprehensive cancer center, we wish to examine all aspects of a patient's wellness and to provide supportive measures that will assist patients in reaching optimal wellness during and after the treatment phase of breast cancer therapy. Utilizing supportive care pathways is an effective and quick reference for clinicians and provides a brief review of current evidence. This supportive care pathway has been developed using current NCCN guidelines and evidence and was drafted by a Nurse Practitioner and an Oncology Pharmacist. It was then revised and approved by a multidisciplinary committee consisting of a Medical Oncologist, Nurses, a Nurse Practitioner, a Sleep Medicine Physician and three Clinical Pharmacists. The pathway was then reviewed and adopted for use by all medical oncologists at our breast center. Clini-

cians will be taught how to use this tool, inclusive of non-pharmacological and pharmacological measures, with respect to sleep disturbance in breast cancer patients via a breast case conference. Following staff education, this pathway and 7 other supportive care pathways developed will guide patient assessment, intervention, triage, and education in our efforts to provide evidence based supportive care.

### **UTILIZING A MULTIDISCIPLINARY APPROACH TO PRIMARY CNS LYMPHOMA INDUCTION**

**Donna Colabroy, MSN, RN, AOCNS®, Lehigh Valley Health Network, Allentown, PA; Lisa Russo, MSN, RN, CNL, OCN®, Lehigh Valley Health Network, Allentown, PA** Primary central nervous system lymphoma (PCNSL) is an aggressive non-Hodgkin lymphoma limited to the brain, spinal cord, leptomeninges and eyes. Affecting approximately 1,500 persons in the United States annually, it is characterized by rapid onset of neurologic deficits, altered mental status, and symptoms of increased intracranial pressure. Induction with high-dose methotrexate (HD-MTX), and other agents that permeate the blood-brain barrier, has shown improved overall survival. Oncology nurses promote optimal patient outcomes as they facilitate interdisciplinary care, administer treatment agents, assess for toxicities, and promote quality of life for PCNSL patients. The purpose of this project was the development of a multidisciplinary algorithm for the diagnosis and initial treatment of Primary CNS Lymphoma. Oncology professionals including: hematology-oncology physicians, a neuro-oncologist, pharmacists, rehabilitation specialists, and oncology nurse specialists, nurse practitioners, nurse educator and clinical nurses, reviewed evidence-based literature regarding current strategies for PCNSL treatment. This collaboration resulted in an algorithm for diagnosis and initial treatment of Lehigh Valley Health Network (LVHN) PCNSL patients. The Primary CNS Lymphoma algorithm addresses specific characteristics of the patient population through interdisciplinary referrals to: ophthalmology for complete eye exam, infectious disease for anti-retroviral therapy in HIV positive patients, palliative care for goals of care discussion, and rehabilitation services for evaluation and treatment of neurological deficits. In consideration of anticipated disease-related deconditioning, fatigue, and sensory alterations, nursing advocated successfully for oncology inpatient unit design accommodations to include: built-in hallway benches for rest during ambulation, hallway distance markers and lap trackers to measure ambulatory achievement, and stationary bikes to de-

ter deconditioning. Chemotherapy regimens containing a high-dose methotrexate backbone, in combination with other agents, are included in the algorithm, according to evidence based literature. Education was presented to oncology providers and nursing staff at virtual clinical meetings, in keeping with COVID-19 restrictions. Accredited aggressive lymphoma education for nurses was offered via web-ex presentation. Four patients have been treated in accordance with algorithm components since implementation in May 2020. Nursing-led, innovative unit design accommodations have met with approval from patients and staff. Educational offerings have increased nursing knowledge in caring for the PCNSL population receiving HD-MTX. Innovation: Identify and recruit clinical trials for primary CNS lymphoma LVHN patients. Create an algorithm for relapsed/refractory PCNSL.

### **ADDRESSING CULTURAL COMPETENCY IN LESBIAN, GAY, BISEXUAL, TRANSGENDER AND QUEER (LGBTQ) CANCER CARE**

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LGBTQ people experience significant health disparities, including obesity, cancer, anxiety, depression, and high rates of tobacco, alcohol, and drug use. Discrimination, inadequate staff LGBTQ health knowledge and lack of cross-cultural training contribute to these disparities. LGBTQ individuals fear discrimination within the healthcare setting and may avoid care and disclosure of sexual orientation and gender identity, thereby leading to a greater cancer burden. The purpose of this project was to provide an evidence-based cultural competency training to foster safe, inclusive cancer care that addresses the LGBTQ population's care needs, while increasing staff attitude and perception of ability to provide inclusive care, and ultimately improving patient outcomes. Fourteen multidisciplinary oncology division staff volunteered and were trained to serve as cultural competency champions. Champions developed a custom LGBTQ training session based on the National LGBT+ Cancer Network's training. Our multi-faceted session utilized videos, interactive exercises and class discussion and was focused on assessing bias, increasing health knowledge, creating a safe environment, and adapting care to LGBTQ health needs. Using content tailored to LGBTQ oncology patients, we trained 110 additional multidisciplinary staff, including pro-

viders, clerical staff, patient care technicians, nurses and social workers, over 15 sessions. Staff completed a 6-item survey pre- and post-training, using a Likert scale from 1 (strongly agree) to 5 (strongly disagree). A paired-samples t-test found significant improvements from pre- to post-training for the following statements: "Organizations should make their bathrooms accessible to gender variant patients/families and staff" pre-training ( $M=1.82$ ,  $SD=.979$ ) to post-training ( $M=1.47$ ,  $SD=.751$ ),  $t(109)=5.78$ ,  $p<.000$  (two-tailed); "I am likely to intervene in a homophobic interaction at work" pre-training ( $M=2.00$ ,  $SD=.878$ ) to post-training ( $M=1.71$ ,  $SD=.805$ ),  $t(109)=4.09$ ,  $p<.000$  (two-tailed); "I am confident in asking gender identity questions that are appropriate to my job" pre-training ( $M=2.15$ ,  $SD=.930$ ) to post-training ( $M=1.66$ ,  $SD=.654$ ),  $t(109)=6.45$ ,  $p<.000$  (two-tailed); "I am confident in my ability to provide appropriate LGBTQ resources for my clients/patients" pre-training ( $M=2.81$ ,  $SD=1.11$ ) to post-training ( $M=1.89$ ,  $SD=.828$ ),  $t(109)=9.41$ ,  $p<.000$  (two-tailed). This oncology-tailored LGBTQ cultural competency training enhanced staff's attitudes towards LGBTQ patients and significantly improved staff's LGBTQ health knowledge. It is feasible to train large numbers of staff using an evidence-based training session that covers key aspects of care and our multidisciplinary cadre of cultural competency champions ensures sustainability and promotes cultural transformation across the oncology division.

### **PERFORMING COVID-19 PCR SWAB TESTING FOR HIGH RISK ONCOLOGY PATIENTS: A NEW INITIATIVE**

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During the Novel Coronavirus-19 pandemic, testing was limited to patients who needed hospitalization. The immunocompromised oncology patients are at higher risks for complications should they contract the virus. Nursing and the Medical leadership, in collaboration with the medical oncologists, nurse practitioners, laboratory and nursing staff worked

together to develop a process for the oncology ambulatory population to perform Covid-19 polymerase chain reaction (PCR) swab testing. To ensure patient and environment safety for oncology patients receiving ongoing treatments, a process was needed to have Covid-19 PCR swab testing accessible in an ambulatory setting. On the main floor of An NCI-designated Comprehensive Cancer Center, there is a Fast Track area that normally is a 3 chairs area for brief non-infusion treatments are administer with a nurse as well as a phlebotomy station. This room was repurposed for Covid-19 PCR swab testing. We collaborated with the infection prevention and control department and a HEPA filter was used to assist in decreasing the risk of exposure to Covid-19. Prior to the Covid-19 pandemic, the outpatient oncology center did not require or need the nurses to be fit-tested for an N-95 mask, however, to protect the staff performing the testing these nurses were expedited through the process. Education on Covid-19 PCR swab testing was done with the nurses and nurse practitioners who were to perform the test. The Covid-19 PCR testing went live in April 2020; since then we have performed a total of 1866 PCR tests and 2126 Covid-19 antibody tests in the Manhattan locations. Once implemented, Covid-19 testing was expanded to all the outpatient oncology sites to continue increasing the accessibility for this vulnerable population. Patients have expressed gratitude to the staff for having the Covid-19 testing available to them. The testing process was seamless for the patients as the testing appointments were routinely arranged while the patient had other medical appointments on the site. The COVID-19 test resulted in less than 24 hours allowing the physicians to make appropriate medical decisions for patient safety.

### **PREGNANCY SCREENING IN FEMALES OF CHILD BEARING AGE RECEIVING RADIATION TREATMENT**

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Radiation treatment can cause temporary and permanent changes to the patient. The radiation exposure is even more relevant for female patients of child-bearing age. There are not many Radiation Oncology departments that have an established policy or workflow to handle this issue. Most departments practice based on mutual understanding of provider and patient and are inconsistent in implementing a plan on conducting pregnancy tests in childbearing age patients. The proposed practice change will help us es-

establish clear practice guidelines and enhance patient safety measures. This project involved designing the policy, patient education material, and staff education plan on practice change. An informal survey of clinicians and staff indicated a very positive attitude towards the practice change. We started this project by researching established guidelines and general practices in the field. We defined the parameters and departmental protocols on pregnancy testing. The proposed practice change was shared with the clinician group for approval. We followed this by designing a workflow to implement the suggested patient safety measure. This project's scope also includes creating the patient education sheet, staff education material, and patient waiver form. The waiver form will be used in circumstances of patient denying the test after being educated on involved risks. If the urine test indicates a possible pregnancy, then an order is placed for HCG to confirm. The sample collection happens in the clinic to avoid patient travel between departments. This project has been presented to the internal clinician team, radiation therapists, nurses, and a panel of oncology patients for review. After departmental approval on the workflow, and patient education material, it will be presented to the organizational leadership for approval and be converted to a policy. As Radiation safety is a paramount concern in treating our patients, this significant patient safety change has been much appreciated by our staff and patients. The proposed policy change will be implemented after staff education.

### **IMPROVING OUTCOMES RELATED TO LAB RECOLLECTS IN ONCOLOGY PATIENTS**

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At this 945-bed teaching hospital, a quality improvement project revealed that lab recollects were causing a variety of problems, including delay in patient treatment; duplication of nursing time, supplies, and lab equipment time; loss of revenue; patient dissatisfaction; potential increase in central line infection rate; potential delay of discharge. This is especially true for bone marrow transplant (BMT) patients that require time-sensitive treatment based on those lab results. Because the majority of BMT patients have central lines, the nurses obtain the blood specimens. Common reasons for recollect include no label, clotting, hemolysis, or underfill. The 32-bed BMT unit has the largest number of specimen collections, and was also

one of the top offenders of lab recollects. The purpose of this quality improvement project was primarily to avoid delays in treatment and to reduce loss of revenue. A secondary goal was to reduce the chance of central line infections by reducing the number of recollect blood specimens. The oncology clinical nurse specialist (CNS) requested that she receive the lab recollect report, so that she could start tracking the exact number and causes of the recollects. Information that was collected included name of specimen collector and reasons for recollect—insufficient volume, no label, hemolyzed, clotted, or mislabel. The oncology CNS worked with the oncology staff development specialist (SDS) on educating the staff—during staff meetings, boot camps, flyers. She also reviewed with the new nurses during orientation the importance of avoiding specimen rejections with our oncology patient population. With every recollect, the CNS sent the nurse an email, which included the specific reason for that recollect. The email included possible causes as well as the correct technique. The nurse was asked for their insights on the cause, and suggestions to avoid future recollects. For fiscal year 2020, the BMT unit averaged 38 recollects per month, and following education interventions by the oncology CNS and SDS, lab recollects are averaging 10 per month for FY21 so far. Implications for oncology nursing practice include avoiding delays in care, duplication of nursing time and supplies, lost revenue, and potential decrease in central line infection. Coordination of efforts to reduce lab recollects is overlooked but improves outcomes.

### **CARDS FOR COMMUNICATION: A SUBJECTIVE SYMPTOM COMMUNICATION TOOL FOR LIMITED-ENGLISH PROFICIENCY (LEP) ONCOLOGY PATIENTS**

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The US population is increasingly culturally diverse, with nearly 26 million reported that they are limited English proficient (LEP). Evidence-based research highlights the negative impact of language barriers on patient experience, adverse events, and care disparities. Health care providers underutilize language services even when readily available. Symptom management is a critical part of cancer care; however, providers are unaware of patients' symptoms, leading to delays in management. Based on the Theory of Symptom Self-Management, self-care management is an essential approach to managing cancer-related symptoms. The purpose of this project was to implement a

“symptom language bank” flashcard deck to improve communication with LEP patients with the goal of decreasing delays in symptom reporting and treatment on a 16-bed inpatient Hematopoietic Stem Cell Transplant Unit. An online survey examined nurse perceptions on symptom reporting, timely management, and interpreter use within LEP patients. 53% reported caring for a LEP patient on a weekly basis or daily basis (40%). Evidence supports interventions that incorporate accessible tools for LEP promote patient empowerment, increase use of interpreters and care engagement. The “Symptom Language Bank” flashcard deck was created, including 25 icons in 11 languages. Simple sentences portray symptoms that the patient can show their care team to prompt further assessment with an interpreter. All content has been assessed for cultural appropriateness through collaboration with the Global Services Department. Despite access to a telephone or video interpreter all of the time (73%), 93% of RNs felt that LEP patients had delays in reporting their symptoms due to their language barrier. 87% felt that language barriers contributed to delays in timely and effective symptom management. Lastly, 80% of RNs felt that having a visual tool to assess for subjective symptoms would facilitate ongoing assessment of their LEP patients. Plan will be to implement the flashcards for 6-months and resurvey inpatient nurses for perception on timelessness of symptom reporting and management since use of the flashcards. It is crucial for healthcare organizations to utilize interventions for LEP cancer patients that promote self-efficacy and active participation in symptom-management. Oncology nurses can partner with their patients to design tailored approaches to symptom self-management—which begins with early reporting.

### **HERE’S LOOKING AT YOU: LESSONS LEARNED FROM BEHIND THE COVID MASK**

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During the COVID pandemic, oncology nurses have been faced with many changes in their daily practice. The use of personal protective equipment has brought a new group of challenges. In normal communication, we read another person’s face for signs of emotion and comprehension. Wearing masks while assessing and treating patients disrupts this process for both the nurse and the patient and can alter therapeutic communication. This presentation will include strategies for effective communication while using a face mask.

The authors will demonstrate how to express emotions and empathy with eyes, hand gestures and effective word selection. Special considerations for the hearing impaired will also be discussed. Trying to communicate with oncology patients while wearing a mask can pose problems, especially when attempting to educate or to convey empathy, concern, and emotions. Nurses should have a heightened awareness for signs of depression, anxiety or despair present in patients. Choose an environment with minimal distractions. Make sure to have the patient’s attention with good eye contact before engaging in conversation. Masks muffle sound, so speak slower and more distinctly. A simple smile cannot be seen unless the communicator “speaks” with the eyes. Appropriate hand gestures can further show expressions and sincerity. Avoid crossing the arms in front of the body. Nurses should be more aware of tone, as it can be misinterpreted. Sharing hidden emotions can also be therapeutic. For example, “Behind my mask, but I’m smiling because of your good report.” Check for comprehension of information shared. If needed, use a pad or white board. Ask the patient to share how he/she is feeling and observe the patient’s nonverbal cues. Using therapeutic communication techniques can ensure more effective portrayal of emotions, empathy and concern. Oncology nurses need to have a constant awareness of their verbal and nonverbal communication, including eye contact and use of eyebrows, facial muscles, and hand gestures. During the COVID pandemic, the use of face masks results in communication issues for nurses and for patients. Nurses must strengthen their communication skill sets in order to effectively communicate and provide quality care. Lessons learned from behind the COVID mask will enhance nursing practice for a lifetime.

### **BUILDING A BRIDGE: UTILIZATION OF ONCOLOGY NURSING SOCIETY (ONS) GUIDELINES TO EXPAND NURSING KNOWLEDGE IN PREPARATION FOR FIRST BONE MARROW TRANSPLANT (BMT) PROGRAM IN UNITED ARAB EMIRATES (UAE)**

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Until recently, patients in the UAE with hematologic malignancy, requiring bone marrow transplant had to travel outside of the country to receive their transplant. This process is taxing for patients posing a significant financial burden compounded by the mental and physical effects of being far from home. In July 2020, the

first bone marrow transplant was successfully achieved at one of the tertiary hospitals. Oncology nursing care have critical role of hospital based nursing in the UAE is no different; whereby the ONS recourses are well utilized for oncology nursing practice. Nurse practitioner from the University of Utah, have traveled to UAE from United States to overlook and support the initiation of the BMT program. The purpose of this project was to explicit the importance of ONS well-established resources, that ensured successful nurse training and attainment of competencies in handling the transplantation therapy. Lead nurses at the tertiary hospitals, have utilized the ONS Hematopoietic stem cell transplantation, as pillar of education and benchmark reference. The training consisted of its online course, which applies evidence-based, care concepts of blood and marrow transplant, symptom management, anticipation of emergencies, and psychosocial support. The education occurred in teams of 3–4 nurses, allowing for a successful rotation between each competency station. Pathways and clinical practice guidelines for the BMT program, written with the help from nurse partners at the University of Utah. Furthermore nurses have met the core competencies for fresh and cryopreserved stem cells infusion, and myeloablative chemotherapy symptom management prior to the first autologous stem cell transplant. Questionnaires prior to and after education to elicit perspectives. Overall, nurses have reported feeling confident in their training, nevertheless, have noted on the questionnaires that there had appropriate resources at hand. To date, 100 percent (n=30) nurses have successfully completed the training and attainment of competencies in handling the transplantation therapy. As a result, total of 3 successful autologous stem cell transplants for patients. There has been a positive impact for patients and nursing, as is evidenced by improved patient outcomes and formalized nursing feedback. Being able to successfully provide a critical treatment modality for hematologic malignancies has led to cost effectiveness for the health system and reduced additional emotional distress of travel for patients.

#### **ASSESSING COVID-19 RISK OF FACILITY PATIENTS TO OPTIMIZE SAFE CARE AND AS A METHOD OF ENHANCING PPE PRESERVATION**

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In light of COVID-19, significant changes to health-care delivery occurred with a focus on safety and clinical

workflow modification at a suburban ambulatory healthcare setting. To minimize risk of COVID-19 exposure, emphasis was placed on patients undergoing chemotherapy and the method of risk stratification for those coming from congregate living settings, such as nursing homes, assisted living and group homes. Screening measures prior to entry into the ambulatory facility were implemented, capturing travel history, COVID-19 related symptoms and exposure risk. Pre-screening occurred prior to the visit via phone and also at entry on day of treatment to ensure adherence of safety protocols. One gap noted was the lack of identification of chemotherapy patients coming from facilities. According to the CDC, risk factors such as frailty and underlining chronic conditions increased prevalence and severity of illness. Due to resident-to-healthcare worker ratios and use of common space, congregate living facilities are considered “hot spots” for infection and can result in outbreaks. With this information, it was essential to understand how to identify this population and determine coordination of care in advance of treatment. Inclusion of the question “Do you live in a facility” was added to the pre-screening call script and the health system’s registration COVID-19 questionnaire. A high/low risk stratification algorithm was developed allowing for systematic data capture and clinical review of facility patients. Facilities were asked about their infection control protocols, screening methods, COVID testing and if residents tested positive. Based on the results, a clinical team determined if the patient was high or low risk for treatment and staff would follow the required high/low risk protocols for treatment. A database was created and a system for ongoing re-evaluation was initiated. Benefits of risk stratification included PPE compliance and conservation, designation of appropriate location of care, initiation of PUI/COVID+ treatment protocol, case review addressing treatment necessity and reduced on-the-spot clinical decision making. Continued opportunities include, advanced identification of facility patients, accounting for the fluidity of living status in the oncology population and facility partnership. Overall, the implementation of improved screening and utilization of facility risk stratification resulted in the achievement of right care, for the right patient, with the right PPE. To date, incidence of patient to employee transmission is zero.

#### **STANDARDIZATION OF BUSULFAN ADMINISTRATION AND PHARMACOKINETIC TESTING TO REDUCE ADVERSE PATIENT**

## EVENTS IN HEMATOPOIETIC STEM CELL TRANSPLANT PATIENTS

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Myeloablative busulfan may contribute to adverse events during the hematopoietic stem cell transplant (HSCT) process due to its narrow therapeutic window and potential to cause veno-occlusive syndrome, graft vs. host disease of the liver, graft rejection and disease relapse. However, personalized dosing and monitoring of pharmacokinetic (PK) levels can minimize the risk for these toxicities. Timing and management of PK monitoring varies widely among institutions, with some regimens requiring as many as nine PK levels to determine therapeutic range. Upon internal institutional review, PK level monitoring and regimen orders varied per ordering clinician. Additionally, PK levels drawn closer to the time of infusion were not always accurate for area-under-the-curve (AUC) calculation. Drug administration and PK monitoring institutional standards for busulfan containing HSCT conditioning regimens were developed in collaboration with nursing, pharmacy, laboratory, and medicine to optimize therapeutic drug effects and reduce adverse events. A standardized process for drug administration was developed to ensure accurate start and stop time of drug infusion. PK monitoring was standardized among all conditioning regimens to 4, 6, and 8 hours after the start of the first busulfan infusion. PK blood samples are drawn peripherally or via central line using heparinized blood collection tubes, and sent on ice to an outside lab for analysis. When dose changes are indicated based on the AUC calculation, pharmacy notifies the medical fellow. A clinical note is entered into the electronic medical record to verify AUC calculation and dose modifications indicated for subsequent doses. To date, 38 patients have received busulfan containing HSCT conditioning regimens since this standardized process was implemented in October 2019. Patient adverse events associated with busulfan regimens (e.g.: disease relapse, liver dysfunction or failure) have decreased from 32% to 8% since implementation. Decreasing the amount of PK sample collections also reduced resource utilization associated with collection supplies, processing costs, and medical personnel. Shortening busulfan PK monitoring to 4, 6, and 8 hours after the start of the first dose

could lead to improvements in HSCT patient outcomes without compromising the therapeutic effects of busulfan. Standardizing PK monitoring across regimens and institutions could also lead to reductions in resource utilization and associated healthcare costs.

## DOWN AND DIRTY: SAFE HANDLING OF HAZARDOUS DRUG EXCRETA

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Studies show chronic, low-level exposure to hazardous drugs (HD) can lead to absorption causing significant acute and long term side-effects: headaches, tissue irritation, nausea, reproductive issues, organ toxicities, and risk for developing cancer. Personal Protective Equipment (PPE) has been shown to reduce/eliminate exposure, however literature suggests poor compliance. In a rural Northwestern US hospital, inpatient oncology staff recognized no standardization in their practice. The purpose of this project was to standardize practice on the handling of HD body fluids. A HD workgroup was formed of front-line nurses that analyzed current resources and practice. They recognized lack of standardization of staff education and began researching current guidelines. PPE and equipment was updated and deployed. An education curriculum was developed to include both a didactic and hands-on training. Mock situations included room preparation for HD precautions, management of body fluid spill, donning and doffing PPE, and handling HD body fluids. Resources were developed including a HD reference chart, badge buddies, HD electronic protocol order set, HD precaution door signage, and patient and family education materials; all resources were uploaded to the organization's intranet. Coordinating with the education department, mandatory education was initiated. Staff attended the Powerpoint presentation then rotated through mock scenarios. Next steps include: annual competencies through the hospital's learning management system. Real time rounding and auditing is currently underway to ensure ongoing education and monitor compliance. 100% of the staff (RNs/CNAs) completed the education. Staff were receptive to the new program, expressing appreciation with the hands-on teaching modality. Compliance audits will be conducted with real time rounding to identify any barriers to the practice change. Nurses on the frontlines of patient care can be change-agents by identifying and implementing changes in practice. Education and compliance on the safe handling of HD body fluids can help decrease

and/or even prevent exposure. With more oral drugs at the forefront of treatment, nurses are seeing HD's on non-oncology units, long term care facilities, and in the community. Oncology nurses should take the lead in educating colleagues caring for these patients. This practice model, with an electronic protocol and education, can easily be adapted by any nurse across the US to drive practice change in their organization and ensure compliance.

### **A REMOTE SYMPTOM MONITORING PROGRAM FOR ONCOLOGY PATIENTS DIAGNOSED WITH COVID-19**

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The COVID-19 pandemic presented unique challenges to caring for patients with cancer. In late March of 2020, at the height of the COVID -19 pandemic in New York, Memorial Sloan Kettering Cancer Center (MSKCC) launched the COVID Cohort Monitoring Team (CCMT), which utilized existing innovative technologies and resources to remotely monitor and manage oncology patients diagnosed with COVID-19 at home and keep them connected to their oncology teams. The purpose of this abstract is to describe the patient experience with remote symptom monitoring during their COVID-19 illness. Patients testing positive for COVID-19 were enrolled in the program and received a daily 10-question electronic survey asking about the presence and severity of their symptoms. A dedicated clinical team consisting of Advanced Practice Nurses, Physician Assistants, Registered Nurses, and Physicians monitored patient responses and proactively intervened to manage symptoms when necessary. For patients who were unable to complete an online survey, the team called daily to assess and review responses over the phone. A subset of higher-risk patients were also provided a pulse oximeter for enhanced monitoring. Concerning symptoms and oxygen saturation readings below 92% triggered automated alerts, enabling the team to respond and intervene promptly. Patients were exited from the cohort after 14 days if they had symptom improvement for

at least 3 days. Between March 26 and September 15, 2020, a total of 844 patients received symptom surveys and 5,821 surveys were completed. A program satisfaction exit survey was sent out to all patients who completed at least one electronic questionnaire. Of those participants who responded to the exit survey (n=249, response rate of 53%), 89% agreed that they “felt connected and safe with the COVID monitoring program”, and 88% agreed that enrollment in the program made them feel more connected to MSKCC. The CCMT provided a safety net for cancer patients with COVID-19 at MSKCC. Remote patient monitoring kept patients connected to their oncology teams during a period of physical and social isolation. By leveraging existing technology and a dedicated clinical team, this program expanded our reach to keep patients safe at home.

### **CAR-T CELL-ASSOCIATED NEUROTOXICITY: A STANDARDIZED APPROACH TO NURSING ASSESSMENT**

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Patients receiving Chimeric Antigen Receptor (CAR)-T therapy are at increased risk for neurotoxicity and related side effects. Manifestations of these toxicities, known as immune effector cell-associated neurotoxicity syndrome (ICANS), are not always applicable to traditional definitions and grading schemes, resulting in highly subjective grading. Early detection and assessment of these changes by nurses is integral in ensuring early intervention and enhanced patient outcomes. Assessing neurologic changes in this patient population remains a problem, as inpatient nurses on a stem cell transplant unit at a major academic medical center did not have a standardized neurological toxicity assessment tool. The purpose of this project was to implement the use of a recommended standardized assessment tool, Immune Effector Cell-Associated Encephalopathy (ICE) scoring system, in the electronic medical record (EMR), educate nurses on use of the tool and documentation, increase compliance and comfortability, and improve communication with providers. Collaboration with information technology department, EPIC teams and hospital CAR-T program to build tool

in the EMR. Educational PowerPoint created for nurses on what the ICE assessment tool is, how to use the tool, and when and how to document in the EMR and presented at multiple in-services to staff. Badge buddies were created with the ICANS-grading algorithm and ICE score components. A standardized handwriting assessment form was created and a bulletin board was displayed in the staff break room as an additional resource. Implementation was successful with compliance using the tool increased from baseline 0 to 87%. 96% of nurses were “very comfortable” using the tool, an increase from 52%. 88% of nurses were comfortable relaying neurological changes to the provider, an increase from 38%. Implementing the ICE assessment tool has been successful in detecting the specific side effect profile and leading to early intervention, therefore enhancing patient outcomes. No patients were transferred to the ICU for treatment related side effects during the period of the project in this patient population. The ICE tool is the most refined side effect profile for toxicities of CAR-T therapy and is recommended for standard of care across commercial products and clinical trials alike. It was not previously being used at this institution as part of the bedside nurse assessment.

### **CARE COORDINATION IN NEWLY DIAGNOSED PANCREATIC CANCER IMPROVES TIME TO TREATMENT**

**Amy Hayes, BSN, RN, OCN®, Vanderbilt-Ingram Cancer Center, Nashville, TN**

Patients facing a new diagnosis of pancreatic cancer often feel overwhelmed and helpless. Diagnostic workup and staging of pancreatic cancer frequently involve a variety of tests with a multi-disciplinary team of specialists which can take a considerable amount of time to complete before initiation of the cancer treatment. Newly diagnosed pancreatic cancer patients can have a significant reduction in time to initial treatment under the guidance of a nurse navigator facilitating complex care in this commonly vulnerable patient population. The purpose of this project was to develop a systematic approach for completing staging of newly diagnosed pancreatic cancer patients with the assistance of a nurse navigator facilitating multi-disciplinary visits by improving access to care thus reducing time to initial therapy, and by providing psycho-social support to patients during this time. Interventions: (a) At the time of referral to the cancer center, introduce the nurse navigator to the patient for coordination of care and counsel. (b) Create a systematic workflow for facilitating diagnostic testing

and multi-disciplinary visits to reduce unnecessary delays in care. (c) Form partnerships with referring physicians and key members of multi-disciplinary team utilizing the nurse navigator as the central point of contact. A pilot project at Vanderbilt-Ingram Cancer Center demonstrated a significant reduction from time of diagnosis to initiation of therapy with the assistance of a nurse navigator coordinating care for patients with newly diagnosed pancreatic cancer. Pancreatic cancer is a complex illness requiring care from multiple specialists such as gastroenterology, endocrinology, medical oncology, surgical oncology, and nutrition counseling. A nurse navigator can serve as the primary point of contact among multiple teams and can help patients feel less overwhelmed by the multitude of appointments through coordinated and timely visits. Under the guidance of a dedicated nurse navigator, patient satisfaction is increased which can improve overall quality of life during a significant illness. Patients with newly diagnosed pancreatic cancer often present with advanced disease thus making the initiation of therapy imperative. A dedicated nurse navigator can assist with facilitating patient-centered care and can offer support to patients facing a complexity of specialty visits related to his/her illness. As clinicians continue to expand on the role of genetics in pancreatic cancer, the nurse navigator can educate patients on the importance of integrating genetic testing with a new diagnosis of pancreatic cancer.

### **SAFE DELIVERY OF CHEMOTHERAPY AND MONOCLONAL ANTIBODIES OUTSIDE OF ONCOLOGY SPECIALIZED UNITS**

**Margie Hubman, MSN, RN, NEA-BC, Mount Sinai Hospital, New York, NY**

Mount Sinai Hospital is a one thousand bed tertiary hospital in New York City. The hospital is experiencing increasing amounts of inpatients that require chemotherapy or Monoclonal Antibody (MoAb) treatments on units outside of Oncology. This resulted in Chemotherapy/Biotherapy Registered Nurses with patient assignments on Oncology units to be deployed to administer the treatments for both Oncology patients and non-Oncology patients. Prior to April of 2019, Oncology RN's were being asked to administer anywhere from 5 to 15 off unit chemotherapy or MoAb's per day. The burden of administering these off unit medications was a dissatisfier to both the Oncology unit RN's as well as RN's and patients on the off units. The two goals of the intervention were to: 1. Improve efficiencies in the administration of off unit chemotherapy and MoAb's, and 2. To ensure Regis-

tered Nurses outside of Oncology had the education and competence to administer specific agents safely. Interventions: (1) In April of 2019 after extensive education and communication, nurses on non-oncology units began to administer oral chemotherapy agents following ONS safe handling guidelines (2) A safe handling of hazardous medication education module was created to ensure all Registered Nurses were aware of the guidelines in handling of these hazardous medications. (3) Created a MoAb didactic education along with a hands on competency to ensure RN's outside of Oncology could safely administer MoAb's for non-Oncology reasons. (4) Adjust policies to reflect the new practices. We were encouraged by the smooth transition of oral chemotherapy delivery by all Registered Nurses throughout the hospital. This alone reduced the off unit chemotherapy administration by approximately 80%. The Oncology team continues to deliver all intravenous chemotherapy where the volume is consistently 0-3 administrations per day. With the assistance of Pharmacy and Nursing Education the administration of oral chemotherapy by all Registered nurses has led to improvements in efficiencies and impact to front line staff as well as reduced complaints by patients regarding delay in oral chemotherapy. Most non-Oncology RN's were under the impression that MoAb's were chemotherapy agents and robust education will need to continue over time to overcome the misinformation related to MoAb's. Multimodal education and extensive communication are required to ensure success of this program.

### **"HELLO, HOW MAY I HELP YOU?": UTILIZING TELEPHONE TRIAGE IN A REGIONAL AMBULATORY ONCOLOGY SETTING**

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In recent years, most oncology care has shifted to the ambulatory setting which has resulted in a need for ambulatory nurses to be skilled in telephone triage to provide guidance and possible interventions to patients and their caregivers. A need was identified for ambulatory oncology nurses, who cover multiple specialties, to utilize the oncology specific triage guidelines to avoid inconsistencies in assessment

and maintain standard documentation. The purpose of this project was to (a) Evaluate and review the current process of symptom management documentation in our current ambulatory setting, (b) Design a symptom management decision making process using the electronic health record and standard operating procedures for triage nurses in ambulatory setting by reviewing current recommendations and utilizing oncology-based resources, and (c) Evaluate the utilization and efficiency of smart phrases and its role in providing accurate communication with the patient and provider. A task force comprised of nursing leadership, clinical nurses, and nursing education was created to evaluate and review telephone triage options and resources. A telephone triage pre-survey was sent to all ambulatory clinical nurses to evaluate the current process and conciseness of telephone triage intake. Overall, 82% of clinical nurses felt that the current process of telephone triage needed improvement in documentation and brevity. Fifteen (15) most commonly reported symptoms in our clinical setting were selected based on data collection and symptom frequency. Oncology Nurses Society (ONS) resources were used to create center operating procedures (COPs) and smart phrases in our electronic health record. Power point presentations were presented to nursing staff both in person and virtually. Collaboration with providers and utilization of both center operating procedures and associated telephone triage smart phrases significantly improved documentation and communication between patients and health care team members. A post implementation survey of the ambulatory nurses revealed that clear, concise, and systematic telephone triage documentation improved by 64%. The team is continuing to monitor provider and nursing feedback and has plans to incorporate additional symptom management smart phrases and center operating procedure. In the ambulatory oncology setting, implementation of a standardized tool for telephone triage assessment and documentation can improve nurse satisfaction and enable nurses to provide and efficiently document safe patient care.

### **A CASE STUDY HIGHLIGHTING THE SOCIAL DETERMINANTS OF HEALTH AND CANCER CARE DURING A PANDEMIC**

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This case study of a Haitian-Creole-speaking woman highlights barriers faced by healthcare providers and patients due to social and racial inequities. A 72-year-old Haitian woman with metastatic breast cancer and

other comorbidities on oral chemotherapy was contacted for a televisit during the peak of the COVID-19 pandemic. A Haitian-Creole interpreter provided translation during the visit. The patient had reported COVID-like symptoms of fever and cough and that her husband was hospitalized with pneumonia to her primary care team. During the oncology follow-up on April 16, 2020, she reported persistent cough without shortness of breath, unknown fever, abdominal pain and body aches. She also reported a housing situation in which she was renting a small room in an apartment with multiple tenants who shared one bathroom and kitchen. A cancer center patient navigator was asked to help provide transportation for outpatient COVID-19 testing. On April 17, four calls were placed by the patient navigator to the patient using a Haitian-Creole translator. A cab was sent the next morning to pick up the patient but she turned the cab away, stating it was too early. Later, the patient agreed to be picked up in the afternoon by a second cab. The patient was dropped off outside the hospital biohazard testing site and instead of entering the biohazard tent for COVID-19 testing, she entered the nearby hospital lab and had routine bloodwork. She then called for a ride home and left the hospital without being tested for COVID-19. She did not understand that the COVID-19 test required a nasopharyngeal swab. She was contacted again but declined to return to the hospital. On April 24, the patient presented to the ED with headache and chest pain and tested positive for COVID-19. She has since recovered from the infection. This case highlights the barriers faced by healthcare providers in delivering high-quality care to patients in need. The social determinants of health in this challenging patient encounter included race, ethnicity, language barrier, health literacy, inadequate housing and lack of transportation. Effective interventions included interpreters and patient navigators. This case illustrates the disproportionate effects of COVID-19 on communities of color and the importance of attending to patients' social determinants of health.

### OPENING AN ACUTE CARE CLINIC

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Nationally, 35% of cancer patients experience at least one unplanned hospitalization, with approximately two-thirds originating from the emergency department (ED). Often, these admissions include management of

expected treatment-related toxicities that could be treated in the ambulatory setting. There is also a subset of patients who are routed to the ED due to lack of availability for same-day appointments in the outpatient oncology clinics. In February 2020, Duke Cancer Center (DCC) opened an Acute Care Clinic (ACC) with the goal of decreasing emergency room visits and hospital admissions for oncology patients by managing their symptoms before they require escalation of care. The ACC is located in DCC's Infusion Center and staffed by one nurse and one Advanced Practice Provider (APP). Patients are encouraged to utilize the triage hotline with new or persistent symptoms such as pain, nausea, vomiting, diarrhea, constipation and malaise. After making contact with the triage nurse, there are algorithms in place to determine whether the patient is appropriate for the ACC or the ED. Since opening, the ACC has seen 131 patients. Of those patients less than 5 had care escalated to hospital admission or sent to the ED. Discussions of next steps for the ACC include identifying a larger space to accommodate increased volume; this may include expanding hours into the evening and weekend. Partnering with radiology for priority imaging and developing a process for directly admitting patients from the ACC. Launching the ACC during the COVID-19 pandemic has provided oncology patients with a perceivably safer option for urgent issues that would normally require an ED visit. Those who have received services in the ACC have found the experience exceptional. Here is a quote from a recent patient, "No matter how very sick I came in I always felt so much better when I left. Not just physically, but emotionally and spiritually."

### UTILIZATION OF AN INPATIENT ADMISSION NOTIFICATION TO IMPROVE TIMELINESS OF REPORTING OF CLINICAL TRIAL PATIENT HOSPITALIZATION

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Treatment clinical trials require timely adverse event (AE) reporting, especially when hospitalization occurs. Clinical research nurse coordinators at Beebe Healthcare are responsible for timely reporting of AE data for patients that are known treatment trial participants. The organization uses different electronic health record (EHR) systems that are not fully integrated for outpatient versus inpatient oncology. In the past, research has relied on staff or the patient/caregivers to report hospitalization, which can cause delays in notification

and reporting of AE data to the clinical trial. The purpose of this project was to prevent delays in care and reporting of AE data when clinical trial participants are hospitalized within the same organization by developing an inpatient admission notification that is communicated to the clinical research department. Working with informatics, the research department was able to develop a notification system for inpatient hospitalization of clinical trial patients. The research nurse enters trial-specific information in the clinical trial patient's problem list in the inpatient EHR. This problem list remains active throughout all patient encounters within the organization. The problem list includes additional information to alert staff that the patient is enrolled in a clinical trial, including: trial name/identification number, investigational agent information and responsible investigator and research nurse contact information. When an inpatient or observation admission order is entered into the inpatient EHR, the order auto-generates a fax to the clinical research department. From December 2019 to September 2020, three inpatient admission notifications were received by clinical research within 24–48 hours from inpatient/observation admission order input. Four known hospitalizations occurred out of the 19 patients on active treatment trials; one of the four hospitalizations occurred outside of the organization and the notification was not generated. The use of an inpatient/observation admission notification to alert the clinical research department of hospitalizations within the organization, allows for accurate and timely reporting of required data to clinical trials. Utilization of the new notification system has decreased delays in reporting of patient hospitalization due to the non-integrated EHR systems. Overcoming the challenge of providing coordinated care with non-integrated EHR systems. Future innovation may extend to notifications for clinical trial patients who have emergency department encounters within the organization.

### **INTRAVESICULAR THERAPY: THE PATH TO STRAIGHT CATH**

Alecia Lewis, BSN, RN, Rush University Medical Center, Chicago, IL; Courtney Carlisle, MSN, CNL, CMSRN, Rush University Medical Center, Chicago, IL; Carmela Reyes, MSN, RN, Rush University Medical Center, Chicago, IL; Laura Johnson, MSN, APN, AGCNS-BC, BMTCN®, Rush University Medical Center, Chicago, IL Intravesicular therapy is the instillation of chemotherapy or immunotherapy directly into the bladder for the treatment of bladder cancer. Historically, the urology clinic at a large academic medical center performed this procedure. Due to new safety guidelines and necessity

of staff competency, the cancer center was charged with taking over intravesicular instillations. The purpose of this project was to determine the safest method for intravesicular chemotherapy/immunotherapy administration. Instillations were performed in an environment specifically designed for chemotherapy administration with spill kits, appropriate PPE (gown, gloves, mask, face shield or goggles), closed-system transfer devices, and experienced chemotherapy certified nurses present. Each bladder instillation was performed with two chemotherapy certified nurses to ensure sterility, efficiency, and appropriate drug administration. Initially, indwelling catheters were inserted and remained intact for duration of dwell. However, several episodes of leaking around the catheter were noted, resulting in hazardous drug exposure to staff. As a result, a switch was made to utilize straight catheters for drug instillation. Patients were required to stay in the cancer center for the duration of dwell time rather than allowing them to leave following removal of catheter. Since implementation, no medication errors or chemotherapy spills have been noted. With use of indwelling catheters, five patients noted leakage around catheters. Upon switching to straight catheterization, only one patient noted leakage during dwell. Several patients reported inability to hold their bladder for complete dwell time. When this occurs, patients are instructed to void bladder contents. All patients expressed preference for straight catheterization, citing less pain and bladder spasms associated with indwelling catheter. Additionally, nursing staff experienced less instances of exposure due to leaking. Despite limited oncology nursing articles on the topic of intravesicular therapy, the team utilized the best evidence available to develop the safest administration method for this treatment. The cancer center will continue administering intravesicular treatments utilizing the aforementioned process while monitoring patient safety, staff safety, and spills. The hazardous drug policy will be updated to reflect the changes in intravesicular administration. Lastly, formal competency will be developed for standardization of new nurse onboarding and yearly maintenance.

### **THE OUTREACH RN: A NURSE DRIVEN INITIATIVE TO ENHANCE NURSING RESOURCES AND MITIGATE NURSE BURNOUT AND COMPASSION FATIGUE**

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Oncology nurses manage stressful events multiple times throughout one shift. Events such as deterioration of patients on an inpatient setting can lead to

burnout, stress, and compassion fatigue. Healthcare institutions should provide resources for nurses to respond to high patient acuity and escalation of care. An NCI-Designated Cancer Center addressed this issue through the development of a nursing resource called the Outreach RN (ORN). This presentation discusses the development of an innovative nurse led resource called the ORN. Implementation of the ORN aids in preventing nursing burnout and compassion fatigue. The ORN assists primary nurses managing critically ill oncology patients on general inpatient units who require an escalation of care to either a Telemetry or Stepdown unit (SDU). An evidence-based search was conducted to review the literature on resources to assist inpatient nurses with critically ill patients and their complex medical needs. The ORN collaborates with the inpatient nurses and rapid response team to assist patient overflow, enhance multidisciplinary care, and promote cohesion across the institution for care of acute oncology patients. This role was piloted over a 4-month period. Stakeholders identified the value of the ORN and approved this role to be a full-time position in order to support the institution. A team of 15 rotating ORN's were trained to assist with advanced nursing interventions, facilitate closed loop communication, and provide education to patients, families, and colleagues. The ORN assisted on average 3 patients per day for approximately 83 minutes per patient. To measure staff satisfaction with the ORN role, a 7-question Likert scale survey was anonymously completed by clinicians involved in patient care with the ORN. Results showed 89% of clinicians strongly agreed the ORN is knowledgeable in their assessments and nursing interventions. 80% of clinicians strongly agreed the ORN facilitated safe transfers and felt increased support from their presence. Lastly, 72% strongly agreed that communication improved during patient events with the ORN. Inpatient oncology nurses require resources and support in order to effectively care for critically ill patients on their units. The ORN not only enhances patient care on inpatient units but also decreases work related stress for the nursing staff. Other institutions can develop and implement the ORN role as a valuable resource to combat compassion fatigue and support nurses.

### **CODES OVER COFFEE: IMPROVING RESILIENCY IN ONCOLOGY NURSING**

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High-acuity, complex medical oncology and gynecology-oncology patients are cared for on two inpatient

units at a large academic medical center. Both units treat patients from initial diagnosis, through extensive treatment, symptom management, and eventually end of life. Due to the chronicity of patient admissions, the nurses and Patient Care Associates (PCAs) often form close personal relationships with patients and families. Caring for patients through their cancer journey and experiencing repeated losses puts staff at risk for compassion fatigue and decreased emotional resiliency. The purpose of Codes Over Coffee is to provide staff with a venue to discuss stressful patient care situations and engage in peer-to-peer emotional support. Codes Over Coffee allows staff to reflect on distressing events to promote well-being and resilience. Codes Over Coffee occurs on each unit once a month for thirty minutes. The sessions are facilitated by unit staff or leadership who have volunteered and attended Peer Resiliency Support Training. The sessions provide a designated safe space for open conversation about events that staff perceive as traumatic, such as a patient fall with injury. Pre and post intervention surveys were distributed to staff who participated to assess self-reported emotional support and ability to combat burnout. A total of 46 individuals completed pre-surveys and a review of that data shows that staff would benefit from the opportunity to discuss the emotional aspect of caring for oncology patients with their peers. Over the course of 11 months, 20 sessions were held with an average attendance of 8 people. Post-surveys were completed by 32 individuals. Post surveys revealed that staff perceived benefit from discussing the emotional aspect of oncology nursing while at work, offering support to their peers as well as receiving support themselves. Additionally, staff reported feeling less overwhelmed and able to continue working in spite of emotional trauma. The negative effects of compassion fatigue have the potential to decrease a caregiver's empathy and resiliency highlighting the need for a critical focus on caring for the caregivers. The next steps will be to train additional staff in Peer Resiliency Support and expand the intervention to the inpatient Hematology and Surgical Oncology units. Codes Over Coffee is an intervention that can be easily implemented on other units as a strategy for promoting resiliency.

### **INCREASING CHEMOTHERAPY CONFIDENCE WITH SIMULATION**

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Our 36 bed Medical/ Surgical Acute Care Oncology unit has had inconsistent volumes of in-patient requiring

the administration of chemotherapy. It is essential that the Registered Nurse who administers chemotherapy have knowledge and skills to safely perform the skill. Our department requires all registered nurses to obtain the ONS Chemotherapy Biotherapy provider card. However, due to the low volume of patients, there were significant challenges in ensuring these nurses maintained competency. The purpose of this project is to evaluate if the use of simulation training can increase the nurse's perceived readiness to administer chemotherapy and manage hypersensitivity reactions. Patient based scenarios were developed to simulate the process for both chemotherapy administration and hypersensitivity management. The hospital's simulation classroom was used for the setting of this education. Participating nurses were provided the patients past medical history as well as a copy of the mock chemotherapy orders. The participating nurse independently demonstrated the process for connecting and administering chemotherapy. Within the first 10 minutes of the administration, the simulation manikin showed signs of a hypersensitivity reaction. The participating nurse then independently demonstrated the process for managing a hypersensitivity reaction. A checklist was used to ensure the appropriate actions were executed throughout the simulation demonstration. A debriefing session was conducted at the end of the session to provide an opportunity for the nurse to reflect on the process and receive feedback. Evaluation: (a) 100% of nurses felt that the simulation session was relevant to their training. (b) 100% of nurses felt that the knowledge and skills gained from the simulation was valuable. (c) 100% of nurses felt that simulation helped them recognize their clinical strengths and weaknesses. (d) 90% of nurses felt that the simulation session helped them feel prepared for clinical practice. The use of simulation training can be an effective tool to measure nursing competency. The use of simulation training can help prepare the in-patient nurse for the care of the patient who is receiving chemotherapy.

### **MANUAL PRONING OF COVID+ PATIENTS IN AN ONCOLOGY ICU**

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In 2020, our patient population, at a 514 bed Magnet-recognized NCI-designated comprehensive cancer center, was severely impacted by the surge of COVID-19 in New York City. Evidence has shown prone positioning to be

an effective treatment modality in patients with acute hypoxemic respiratory failure. In response, we made a clinical practice change to include manual proning as standard practice in the care of mechanically ventilated patients who were COVID-19+. The purpose of our intervention was to enhance the quality of care of our patients by implementing proven best practice in improving oxygenation of critically ill patients with COVID-19 in an oncology setting. Education and hands on training of 120+ members of the interdisciplinary team (including, but not limited to, nursing staff) on implementation of manual proning of mechanically ventilated patients. Considering exposure, we utilized the appropriate resources to turn patients in the prone and supine positions in order to improve oxygenation and overall disease trajectory while ensuring the safety of staff. Of a total of 68 mechanically ventilated COVID+ patients, 38 were manually prone, many of whom saw improvement in oxygenation. It is worth noting that upon educating staff, this level of practice will continue to be incorporated as a standard of care for appropriate candidates moving forward. Edits were made to a preexisting policy to include manual proning and subsequently implemented in a timely manner to facilitate emergent intervention in a population particularly vulnerable to complications of COVID-19. In a staff, who were not experienced in manual proning, we were able to rapidly educate on basic body mechanics, nursing considerations, pathophysiology, and overall safe patient handling of mechanically ventilated oncology patients. Consideration was given to the manner in which proper education and supplemental materials were rapidly disseminated and best utilized in directing nursing care. Manual proning is a safe and effective standard of nursing care in the treatment of hypoxemic respiratory failure secondary to COVID-19 in mechanically ventilated patients in an oncology ICU. The primary outcome was successful implementation of a change in clinical practice. We were able to adequately optimize our procedures regarding policy modification, education, and implementation with a level of efficiency necessitated by the impact of viral illness on a vulnerable patient population.

### **A NURSE-DRIVEN MODEL FOR MANAGEMENT OF OUTPATIENT ONCOLOGY PATIENTS DURING THE COVID-19 PANDEMIC**

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With increasing urgency to maintain care and critical services for ambulatory cancer patients during

the pandemic, nurse leaders at an urban, academic infusion suite averaging 60,000 visits annually implemented a care model designed to address the COVID-19 specific needs of this vulnerable patient population. Inefficiencies in patient scheduling procedures, lack of an established process for multidisciplinary communication regarding care plan, and an unclear pathway for person under investigation (PUI) management at the start of the pandemic led to avoidable staff exposures and unnecessary delays in patient care. In partnership with Oncology Provider Leadership and Infection Control, Infusion Nurse Leadership designed a sustainable testing and treatment model for ambulatory oncology patients under investigation for or with confirmed COVID-19 infections. A classification system was developed to help identify cancer patients' COVID-19 testing needs. "COLD" patients were oncology patients presumed to be COVID-19 negative, but required COVID-19 testing prior to an admission or a procedure. "HOT" patients were oncology patients that were PUIs, had confirmed COVID-19 infections, and/or had known high-risk exposures. Clear communication pathways were established for patient care coordination, appropriate scheduling, and continued care planning with dedicated hotlines staffed by infusion nurses for both "COLD" and "HOT" patients. An 8-room clinic was reconfigured and designated as a "HOT" patient zone. Staffed by infusion nurses, oncology PUIs and patients with confirmed COVID-19 infections were able to be isolated safely and receive evaluations, testing, transfusion support, anti-cancer therapy, and other infusion services without delay. Infusion nurses served as real-time personal protective equipment (PPE) experts, providing guidance and education to providers on proper PPE procedures and clearance strategies for discontinuation of PPE following an infection. From June through August 2020, the "HOT" patient zone saw approximately 2.3 "HOT" oncology patients per day. 76% of "HOT" patients were PUIs and 24% were patients with confirmed COVID-19 infections. 88% of "HOT" patients seen and treated in the "HOT" patient zone had a disposition to home. Cohorting PUIs and COVID-19 positive patients allowed for streamlined care, reduced ER utilization, decreased staff exposures, and minimized potential exposures to other vulnerable, immunocompromised oncology patients. This nurse-driven initiative offers a translatable care model for other forward thinking ambulatory infusion practices facing ongoing uncertainties during the COVID-19 pandemic.

## DECREASING FALLS IN BONE MARROW TRANSPLANT PATIENTS THROUGH HEIGHTENED AWARENESS OF SYMPTOMATIC ANEMIA AND ORTHOSTATIC HYPOTENSION

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In 2019 through October our inpatient unit had 21 falls; nine (43%) related to weakness, dizziness, syncope, or hemoglobin less than 8 g/dL. A hematologic diagnosis requiring bone marrow transplantation was identified as a predictor of fall events in patients with cancer. The National Database of Nursing Quality Indicators (NDNQI) identified falls as a nursing-sensitive indicator of patient safety. The purpose of this project was to decrease falls in bone marrow transplant (BMT) patients through heightened awareness of symptomatic anemia and orthostatic hypotension (OH). Following a literature review of falls in hospitalized patients with cancer, we decided to focus on symptomatic anemia and OH in the BMT patient population. Before implementing the pilot study, we educated nurses on criteria for checking orthostatic vital signs (VS) and interventions if the patient was OH-positive (OHP). Between November 11, 2019 and February 29, 2020, all BMT patients had orthostatic blood pressure and heart rate performed on admission, if hemoglobin less than 8 g/dL, or experiencing symptomatic anemia. Nursing interventions implemented for OHP patients were: (1) Document orthostatic VS in the PowerChart, (2) Notify physician and carry out orders, and (3) Implement identified safety interventions. Forty-one patients were evaluated. Twenty-seven (65.9%) patients had symptomatic anemia or hemoglobin less than 8 g/dL. Eight (19.5%) patients were orthostatic positive. During the pilot study, one BMT patient (with symptomatic anemia) fell. Fall rate on the 3rd floor for the first two quarters of 2020 was 1.18 and 2.40 falls per 1000 patient days. This was below the NDNQI benchmark of 2.78. Fall rate on the 4th floor for the first two quarters of 2020 was 2.73 and 0 per 1000 patient days. This was below the NDNQI benchmark of 3.29. Our inpatient goal is to decrease fall rate to zero. BMT patients are at risk for falls as a result of their diagnosis and treatment.

Oncology nurses play an important role in preventing falls by being cognizant of physiological factors such as symptomatic anemia and orthostatic hypotension, and quickly implementing evidence-based interventions. We created a tailored fall prevention program for BMT patients with symptomatic anemia and orthostatic hypotension that has become the standard of care to prevent falls in all patients on our unit.

### **DISTINCT DEPRESSIVE SYMPTOM PROFILES ARE ASSOCIATED WITH POORER QUALITY OF LIFE OUTCOMES IN OUTPATIENTS WITH CANCER RECEIVING CHEMOTHERAPY (CTX)**

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Depression is a common symptom that occurs in 15% to 30% of patients with cancer undergoing CTX. Little is known about the demographic and clinical characteristics that contribute to inter-individual variability in depressive symptoms in patients receiving CTX. The purpose was to identify subgroups of patients with distinct depressive symptom profiles and determine which demographic and clinical characteristics and quality of life (QOL) outcomes differed among these subgroups. Outpatients (n=1327) were recruited during their first or second cycle of CTX. Depressive symptoms were evaluated the Center for Epidemiological Studies-Depression scale a total of six times over two cycles of CTX. Latent profile analysis, a person-centered analytic approach was used to identify subgroups of patients with distinct depressive symptom profiles. QOL was measured using the Multidimensional Quality of Life Scale-Cancer (MQOLS) and the Medical Outcomes-Short Form-12 (SF-12). Four latent classes with distinct depressive symptom profiles were identified (i.e., Low (47.3%), Moderate (33.6%), High (13.8%) and Very High (5.3%)). Compared to the other two classes, patients in the High and Very High classes were less likely to be married or partnered, reported a lower annual household income, had a worse functional status, and had a higher comorbidity burden. For the physical and psychological subscales and the total QOL scores on the MQOLS, the differences in scores among the profiles were in the expected direction (Low > Moderate > High > Very High). For the SF-12 Physical Component Summary score, patients in the Low class had signifi-

cantly higher scores than the other three classes. For the SF-12 Mental Component summary score, differences among the profiles were in the expected direction (Low > Moderate > High > Very High). Except for the Low class, the Mental Component scores for the other three classes were below the United States population norms. This study identified four distinct profiles of depressive symptoms in patients undergoing CTX. A third of the sample met the criteria for subsyndromal depression. Almost 20% of the sample had clinically meaningful levels of depressive symptoms. Clinicians need to perform routine assessments of depressive symptoms in patients with cancer and initiate appropriate referrals to mental health professionals.

### **ONCOLOGY NURSES LEAD THE WAY: DEVELOPMENT OF A NURSE-LED HAZARDOUS DRUG SPILL RESPONSE TEAM**

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Hazardous drugs (HDs) are administered across many different health care settings and can cause risk to patients and health care workers (HCW) if exposed. Exposure to HDs can cause organ toxicity, infertility, miscarriage, or birth defects and possibly cancer. The USP General Chapter <800> Hazardous Drugs-Handling in Health Care Settings describes standards to promote patient and healthcare worker safety and environmental protection from HDs. Facilities that handle HDs must incorporate these standards into their safety plan. One component of this plan includes hazardous drug spill control. HCWs who may be required to clean up a HD spill must receive proper training in spill management. Froedtert & the Medical College of Wisconsin Froedtert Hospital needed policy and procedures to address these new standards. As a result, a multi-disciplinary HD spill team, led by an Oncology Clinical Nurse Specialist was developed. This team created a new HD spill policy and procedure for HD spills; workflows and response to HD small and large spill; an online learning module with a focus on nurse HD cleaning; a reporting tool for HD spills for monitoring and evaluation; and lastly, a 24/7 oncology nurse led spill response team consultation service was developed. For this service, thirty oncology nurses were trained to consult staff who require help with proper handling of a small HD spill. All staff are trained upon hire and annually through an online learning module. Security staff are trained to page the HD spill response team (SRT) where trained oncology nurses will consult staff regarding proper procedures

for handling HD spills. USP Chapter <800> standards became enforceable December 1, 2019. With the development of a team, we were able to meet and exceed the spill control standard. We continue to hold monthly SRT meetings and review all reported spills. Although only one page to the SRT has occurred since inception, the need to always be prepared to handle a HD spill at any time remains key to the safety of patients, staff and environment. Other organizations may wish to evaluate their response to HD spills and adopt a nurse-driven framework.

### **SELF-REPORTED HEREDITARY BREAST AND OVARIAN CANCER SYNDROME MANAGEMENT COMPLIANCE AND NEEDS ASSESSMENT VIA ELECTRONIC FOLLOW-UP SURVEY**

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Individuals carrying germline mutations in genes associated with inherited cancer predisposition syndromes have significantly increased cancer risks. The National Comprehensive Cancer Network® (NCCN®) has published cancer risk management guidelines for mutation-positive patients and for cancer survivorship. Compliance with screening and/or prophylactic surgical intervention is known to reduce cancer incidence. Ongoing patient follow-up through oncology patient navigation is essential and has been shown to increase patient compliance and uptake of cancer survivorship. The UT Southwestern Cancer Genetics program implemented a genetic patient navigator (GPN) to assess patients' barriers to care, assist patients in identifying resources to increase compliance, promote healthy lifestyle education, and assist with coordination of cascade testing for at-risk relatives. An electronic survey was developed to maximize GPN reach, as well as to analyze various metrics. The electronic survey was sent out to 541 of our known Hereditary Breast and Ovarian Cancer syndrome (HBOC) patients in October 2019 for whom we possessed valid email addresses. The intent was to obtain and evaluate self-reported patient compliance, patient needs, and barriers to care with hereditary predisposition management guidelines. Completed surveys were linked with a unique ID for each patient. Information attached to the survey included: Up-to-date hereditary predisposition management guide-

lines, healthy lifestyle resources, local survivorship program information, cascade testing, as well as GPN contact information. Three attempts to (once every two weeks) were made via electronic mail. Out of 541 surveys sent to HBOC patients, 172 (32%) were fully completed. Surveys completed by men were not included in our analysis for breast and ovarian management compliance (defined as bilateral mastectomy (BM) or compliance with breast imaging surveillance, and bilateral salpingo-oophorectomy (BSO)). Of the 147 surveys completed by women, 95 (65%) were compliant. In addition, 48 patients were recontacted at their request for assistance with 89 services. One hundred fifty seven educational materials were sent out in response. Use of this innovative electronic initiative was successful in reaching a large number of our targeted population, allowing us to query patient compliance and requested resources, thus providing the GPN to focus her services in a more productive manner. Work is now in progress to contact the 35% of patients not in compliance with HBOC management recommendations.

### **AN "URGENT" RESPONSE TO COVID-19 IN THE CANCER POPULATION**

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COVID-19, first reported December 2019 in Wuhan, China, rapidly grew to a global pandemic. The virus disrupted healthcare, creating challenges in providing patient care specifically pertaining to immunocompromised and oncology patient populations. The urgent care (UC) team at a large academic medical center created innovative pathways allowing for vulnerable patients to continue receiving care. The advanced practice provider and nurse-led UC team operated two clinic spaces. The intended goal of separate spaces was to divert patients under investigation (PUIs) for COVID-19 from other cancer patients and avoid emergency department visits, thereby decreasing risk of transmission, limiting staff exposure, conserving supplies, and allowing for continuity of care/treatment throughout the pandemic. Herein, the pre-screening, isolation, and testing approaches of an outpatient oncology clinic during the COVID-19 pandemic are described. To limit exposure, a designated, strategically placed clinic on the ground floor

was utilized for testing of symptomatic and asymptomatic PUIs. Pre-screening calls were placed before appointments to assess for symptoms or potential exposure. Criteria for testing were based on symptoms, exposure, new treatment start, inpatient admission, or planned procedures. Designated staff was assigned to manage patient care, thereby limiting exposure. Staff escorted patients into, out, and throughout the building to ensure social distancing. Upon arrival, PUIs were placed in isolation according to CDC recommendations and were separated within the clinic based on symptomatic versus asymptomatic. Nurses obtained the specimen and performed patient assessment and medical assistants ran the test on a point-of-care machine. The oncology COVID-19 clinic was open seven days per week for seven weeks. During that time, the clinic tested 272 patients utilizing rapid point-of-care testing. 17 patients tested positive, resulting in a 6.2 percent positivity rate. Of the 272 patients tested, 232 presented with COVID-19-like symptoms. The remaining 40 patients were asymptomatic and tested prior to inpatient admission, treatment, or procedure. The core group of nursing staff working in the oncology COVID-19 clinic maintained appropriate precautions at all times, resulting in zero cases of staff COVID-19 infection. The separation of oncology patients presenting with COVID-19-like symptoms from other oncology patients proved beneficial for staff and patients in terms of safety and satisfaction. Separation of patients being tested for COVID-19 from the general oncology population has been maintained throughout the months following the pandemic peak.

### **HUDDLE FOR SAFETY: INTERDISCIPLINARY COMMUNICATION AT A CRITICAL POINT IN THE CARE CONTINUUM**

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The women's oncology infusion team noticed gaps in the coordination of patient care in the infusion center. Infusion nurses did not have a mechanism to succinctly communicate crucial patient information to interdisciplinary team members who provide care. Oncology nurses and providers verbalized frustration with knowledge deficits about patients' plan of care, transition of care, risk of falls, incomplete chemother-

apy order sets, research protocol deviations and patient satisfaction. Better interdisciplinary communication was needed to ensure delivery of safe, quality, coordinated care. Initially, infusion huddle included nursing staff, ambulatory care associates, and managers. The huddle expanded to include pharmacists, social workers, and breast and gynecology oncology research nurses and clinic nurses. The charge nurse instituted an 8:05 AM start time and a dry erase white board which listed crucial clinical elements for each day. The charge nurse broached standard data points: number of nurses treating, number of patients per nurse, phone triage nurse, late nurses, and phone numbers for on call fellows. Research nurses reviewed each study patient and specific protocol requirements. Ambulatory care associates reviewed patients who were fall risks and patients who required a private room. There were no falls with injuries following the twelve month period after the infusion huddle was initiated compared to pre-huddle previous year of one fall with injury. Press Ganey metrics improved; quality of care received from the nurse (mean 95.3) and explanation of what to expect during chemotherapy (mean 92.1). Rating of discharge instructions remained the same (mean 93.8). Communication at huddle minimized protocol deviations during this time. The huddle became a communication vector for information during the Covid-19 pandemic. The huddle was sustained when the infusion unit moved to an ambulatory satellite location. Social workers participated in the huddle; daily concerns were addressed. Pharmacists provided medication and operational updates. Clinical reminders were included on the white board such as tumor marker lab draws and research RN contact numbers. An infusion huddle, which began as a department initiative, matured into an interdisciplinary team effort and served as a communication tool to enhance patient satisfaction and safety. Huddle can be used as a model for other infusion sites across the care continuum.

### **LOOKING TO THE EVIDENCE: HEPARIN VERSUS SALINE IN IMPLANTED PORTS**

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For several years, a clinical inquiry has been made on whether the use of heparin is superior to saline in preventing catheter occlusions in implanted ports. There are also serious adverse risks associated with heparin including heparin-induced thrombocytopenia and hypersensitivity reactions. Some research also indicates

that heparin may be associated with Staph aureus bio-film formation, which could lead to a central line-associated bloodstream infection (CLABSI). Heparin is also a greater financial cost compared to normal saline. For these reasons, many clinicians have questioned whether routine flushing of heparin is supported by evidence. The Oncology Clinical Nurse Specialist (CNS) Fellow conducted a thorough literature review and concluded that there was a lack of evidence supporting the use of heparin over saline in implanted ports. They partnered with Pharmacy and pursued a change in clinical practice. The primary goal was to standardize the practice and procedure for flushing and locking adult implanted ports in both inpatient and ambulatory settings in accordance with the most recent evidence and guidelines. The Oncology CNS Fellow introduced the idea with a pharmacist at our Oncology Formulary Subcommittee. With the support of the committee, a formal proposal was developed. Then, they met with several stakeholders throughout the institution including nursing, providers, and pharmacists. This practice change was recently given final approval and is scheduled to be implemented in November. To evaluate whether our practice change impacts catheter occlusion rates, data for alteplase administrations in adult implanted ports over the last 12 months was collected. Following the practice change from heparin to saline, the data will be monitored for the next 12 months to assess whether there was a significant variation in number of alteplase administrations. There are other implications that this practice change may have on policies in other clinical areas in the future, such as the use of heparin dwells in hemodialysis catheters. While additional research is merited, institutions may wish to consider the current evidence and assess the risks versus benefits of continuing with heparin as their standard of care if there is not sufficient evidence to support this practice. Institutions can be encouraged by others who have adopted this change in practice and shared their outcomes.

### **ONCOLOGY CARE IN A GLOBAL PANDEMIC: INNOVATION TO ENHANCE PATIENT SAFETY AND QUALITY CARE**

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In the United States, approximately 15.5 million people are living with cancer and 1.8 million new cancer diagnoses predicted in 2020. When COVID-19 struck Seattle, Washington in March 2020, healthcare organi-

zations worked to reprioritize initiatives, focusing on new care delivery models to increase social distancing and minimize patient and employee exposure risk. Nationally, oncology patients comprise 4.2% of emergency room (ER) visits due to treatment symptom management needs. Oncology patients seen in ERs are admitted at rate of 60% to the inpatient setting. This is three times the rate of the general population due to lack of provider expertise in oncology and the patients' immunocompromised state. The oncology population became an immediate priority to protect during the pandemic. In 2019, an NCI designated ambulatory oncology hospital had an 18.2% increase in ER utilization of oncology patients, with the highest utilization times occurring between 9:30am to 5:30pm. Diagnoses were consistent with reports in the literature: nausea, vomiting, diarrhea, neutropenia, pain, constipation, and fever. Nine days after Washington's first case of COVID-19, we developed and implemented a 3-bed, APP-led acute symptom management clinic to promote oncology patient care and safety by shifting patient volumes away from the ER to a safer, outpatient setting. Treatment services were established for immediate symptom management as well as capacity for procedures such as thoracentesis and wound care. Essential for this necessary ambulatory care provision was the careful coordination of the laboratory, imaging services and clinic providers. Since March, this clinic has seen a total of 601 patient referrals, with deferral of 110 patients due to medical inappropriateness, lack of available specific services, or clinic capacity limitations. Over 70% of treated patients have been discharged home; 10% were sent to the ER and 20% directly admitted to inpatient. This is a substantial decrease to the national average and represents enhancement to safety for oncology specialized care. Patients express appreciation for the thoroughness of the evaluation, available medical records, and greater staff understanding of their oncologic problems. One patient said, "It's a much better choice than the ER." Promoting oncology patient safety and best outcomes also resulted in high patient satisfaction.

### **CONTRIBUTIONS OF MUSIC THERAPY TO THE MANAGEMENT OF STRESS AND DISTRESS IN CANCER PATIENTS**

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In nursing, the use of music is applied as a complementary way to relieve pain, promote well-being as well as to relieve other nursing diagnoses, namely:

spiritual distress, sleep disorders, hopelessness, risk for loneliness, social isolation and stress. This is because the use of music promotes positive physiological effects, such as changes in blood pressure, heart and respiratory rate and reduction of sensory pain stimuli. In response to cancer and / or its treatment, a large number of patients present, in addition to physical symptoms, decreased functionality, loss or absence from work, social isolation, fear, sadness, anger, anxiety, depression and uncertainties, which cause emotional suffering. The objective was to evaluate the effect of music on the physiological and emotional stress of cancer patients undergoing treatment. This is a quasi-experimental study, of the type before and after, conducted between January and July 2018 in a Public Hospital located in the city of Macaé, Brazil. The study design followed the recommendations for interventional studies in the Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT). The study was approved by the Research Ethics Committee of the Federal University of Rio de Janeiro. The single intervention with 26 patients occurred individually using headphones, and lasted 15 minutes with 3 songs chosen by the patients themselves. The present study showed evidence that the use of music with cancer patients was shown to reduce physiological and emotional stress. This study brings two contributions not only to nursing, but to all health professionals who care for cancer patients. The first concerns the choice of the method not usually used in nursing studies, especially when it is intended to confer scientificity to an intervention, in this case, the musical intervention attributing it the possibility of measuring biological changes. The second has to do with the fact that we have found a small number of studies comprising this object of research, so it is of great relevance to study the effects of the use of music on cancer patients, expanding the possibilities of attending this type of patient. and promoting a non-invasive and non-pharmacological therapeutic form, but that, even so, may be able to act on the physical and emotional needs of these patients.

### TRANSITIONING TO BIOSIMILARS

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A biosimilar is any drug that is very similar, but not identical, to a drug that has already been approved for use for specific indications. Biosimilars function in the same way as the reference drug. The molecu-

lar construction is different, but they are designed to produce the same effects. One of the largest benefits of the use of biosimilar agents is the cost savings. Biosimilars can be produced at a reduced cost compared with the reference agent, and these savings are then passed on to the patient. Tennessee Oncology is a large community based private practice with more than 30 outpatient clinics. All clinics have infusions centers. After the introduction of biosimilar drugs, an increased trend in medication events was noted with several being wrong drug events. The naming convention for biosimilar agents established by the FDA keeps the same name as the generic name of the reference drug, with the addition of a suffix. At Tennessee Oncology, drugs are built into the dispensing cabinet formulary using their generic name. The similarities between these names combined with process flows were contributing to medication errors and or near misses. The most commonly occurring event was during the dispensing process. In most instances, the clinician pulling the medication did not read the entirety of the name or note the difference of the drug name on the order with multiple options available. Additional contributing factors often included haste and interruptions. To prevent further events, a new workflow was developed and put in place with input from staff. Following this new process, drug orders with both the brand and generic names listed are taken to the dispensing cabinet and used to compare with available inventory. The selected drug and order are then reviewed by a second clinician to verify that the drug matches the order. For any drugs given intravenously, an additional safety check is performed at the chairside, where again both drug names on the order are compared with both drug names on the label. After implementation of this process, we have noted a decrease in medication errors and near misses. This slight change to the workflow has greatly increased efficiency and patient safety. This change has also helped clinicians become more comfortable with using biosimilars.

### THE EFFECT OF CANNABIS CONSUMPTION ON IMMUNE RELATED ADVERSE EVENTS IN MELANOMA PATIENTS TREATED WITH IPILIMUMAB NIVOLUMAB COMBINATION THERAPY

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Immunotherapy has become a standard of care in melanoma patients. Combination therapy with Ipilimumab and Nivolumab (Ipi-Nivo) yields high response rate in patients with metastatic melanoma. However, this treatment is associated with high rates of immune-related adverse events (irAE) that are usually managed by steroids. Cannabis is widely used by cancer patients due to disease-related symptoms and treatment-induced side effects. Recent studies suggest that cannabis may alter the efficacy of immunotherapy, as it has potent immunomodulatory properties. This study investigates possible immunomodulatory effects of cannabis on irAEs in melanoma patients treated with Ipi-Nivo combination therapy. We conducted a retrospective study of patients treated at the Ella Lemelbaum Institute at Sheba medical center. Patients records were analyzed according to Cannabis prescription, type of immunotherapy used and the occurrence and grading of irAEs. The cannabis prescription was triggered by requests from patients. Statistical analysis was carried out with the JMP version 15.2 software ([www.jmp.com](http://www.jmp.com)). The study was approved by the Sheba Medical Center IRB (approval #SMC-15-2411). The analysis involved exploratory data analysis including contingency table tests for independence and decision tree analysis. Two hundred and nineteen melanoma patients were treated with Ipi-Nivo in our institute between January 2017-May 2020. One hundred and eighty patients were evaluable for treatment-associated irAE, of them 30 patients were also treated with Cannabis (Group A). In all cases the cannabis prescription was triggered upon patient request before or at the initiation of treatment with Ipi-Nivo. The other 150 patients were not prescribed with cannabis (Group B). The median age of the entire group was 63, 38.3% were female and 95% had stage IV disease. There was no difference between groups regarding age, sex, stage of disease, prior steroid therapy, ECOG performance status and LDH. Patients in Group A developed similar rates of grade 1-2 or grade 3-4 irAE as compared to patients in Group B (83% vs. 77%, and 43.3% vs. 36%, respectively,  $p=NS$ ). Similarly, there was no difference in the treatment discontinuation rate among the two groups (44% vs. 40%,  $p=NS$ ). Cannabis consumption during Ipi-Nivo treatment does not significantly affect the immune toxicity profile in metastatic melanoma patients. Further studies are warranted to investigate the exact impact of cannabis on immunotherapy in cancer patients.

## CANCER DOES NOT STOP FOR COVID-19 AND NEITHER DO WE: THE RAPID TRANSITION TO OUR "NEW NORMAL"

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The Inova Life with Cancer (LWC) program is the psychosocial support arm for our cancer community. We meet patient and caregiver needs through education, information and support. LWC offers support at no cost from: oncology nurse navigation; oncology clinical therapists; oncology dietitians; individual and group education; exercise programming; mindfulness and relaxation classes. With the impact of COVID-19, the LWC program had to quickly respond and create changes to continue to meet the needs of our community. LWC's mission, to enhance the quality of life of those affected by cancer by providing evidence-based education, support, wellness programs, and integrative therapies, has always been offered in-person. To continue to support our mission during COVID-19, we were able to transition all programming to an online platform via Zoom. Collaboratively, our team shifted all programs to Zoom. To enhance privacy, we secured a password/code invitation for all gatherings. We kept statistics on the number of participants for each class. Evaluations were also obtained for feedback. Participation in all our programming has been well received. From May to August, an average of 128 classes and programs were offered monthly and attended by more than 3,000 participants each month. The onset of COVID-19 brought many restrictions and fears which added an additional layer of stress to our cancer community. Our transition to online programming has helped our community to feel connected in an isolating time. We saw increases in participation in all our programs. The transition to online offerings has provided participants convenience of staying at home and a timesaver from having to commute. Initially staff was challenged with the set up of Zoom but this has since dissipated with its ongoing use. The lack of geographic distinction, the loss of intimacy of in-person groups and possible lack of privacy within one's home have been identified as concerns via this platform. Since facing the pandemic changes, LWC transitioned all its programming to an online and telehealth format, continuing to fulfill our mission to meet the needs of the community now and in the future.

## BEWARE THE SPLASH ZONE! IMPLEMENTING A SINK HYGIENE BUNDLE ON A BONE MARROW TRANSPLANT UNIT

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Bone marrow transplant (BMT) patients are highly susceptible to blood stream infections (BSI) due to their immunocompromised state and heavy use of vascular access devices. Since 2011, our unit has had 105 cases of *Pseudomonas aeruginosa* BSI. A particular carbapenem resistant strain of *Pseudomonas* occurred in 56% of these BSI. Case reviews indicated the commonality among the resistant strain BSI was care received on our unit. As infection prevention interventions are paramount in our care delivery, we convened a multi-disciplinary group to discuss the possible causes and identify a solution. We learned via systemic reviews that many carbapenem resistant organism outbreaks were linked to hospital water sources, particularly wastewater drains. Through different environmental testing and collaboration with an outside vendor, we discovered our resistant strain in our wastewater drains. With this knowledge, our group determined next steps to prevent further exposure of this resistant strain to our patients. Enter the splash zone and the sink hygiene bundle (bundle). The splash zone is any environment at risk of exposure from water that has come in contact with the wastewater drain and splashes back out. On our unit, this was determined to be the patient room sink counter space and bathroom. We provided education to our staff and patients about the splash zone including the bundle's interventions to prevent exposure when in the splash zone. We modified daily cleaning and preventative maintenance expectations, and purchased an additional workspace for nurses. Since the implementation of the splash zone in December 2019, we have seen a decrease in resistant strain BSI. However, since we stopped auditing practices in March 2020, we continue to find inconsistent application of bundle interventions by staff and patients. The timing of our splash zone work aligned with the CDC's publication of their sink hygiene bundle, which helped garner support from administration to prioritize this work and needed interventions. Reinvigoration of daily audit processes is planned for October 2020 at which time we hope to see consistent compliance with the bundle and lower rates of the resistant strain BSI. We started

the splash zone and bundle on the inpatient oncology units due to our patients' risk profile with plans to move to our critical care areas next.

## THE VALUE OF COVID-19 ON SURVIVORSHIP CARE

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Survivorship focuses on the health and well-being of a person with cancer during and after treatment from the time of diagnosis. Supporting mental, physical, social, and emotional health is an integral part in overall wellness, especially for our cancer care population. Due to COVID-19 pandemic, our educational seminars and support groups were placed on hold to promote social distancing and safety of our community. With unanticipated surgical/testing delays, treatment plan changes, restrictions on visitors, limited social contact, and financial stressors, our patients and caregivers verbalized more anxiety, fear, depression, isolation, and uncertainty. The pandemic climate and increased stressors often manifested physical symptoms. Prior to COVID, our health system held support groups and educational seminars as part of our survivorship services. These events were conducted in-person and were hospital based, varying in frequency from weekly to monthly. Our system-wide survivorship educational seminar offered quarterly in-person sessions to support patients on a selected topic led by experts in their field with interactive Q&A. The COVID-19 pandemic limited our ability to fully provide services to our cancer care population. During difficult times, uncertainty and stress can affect mental, physical, and emotional health—which is amplified when coupled with navigating cancer treatment. The pre-pandemic structure of groups/seminars only available in-person limited our inclusion and accessibility to our entire cancer care population, which was an ever-prevalent need during this crucial time. To support our cancer care community and expand access to services with in-person event cancellations d/t COVID-19, our goal was to re-initiate our previously utilized survivorship services with expanded system-wide virtual offerings. Working with health system leadership, a HIPAA compliant IT platform was identified to adapt our survivorship services to enable virtual participation. Upon platform licensure, our team worked together to train each other to best practices for the new virtual process and ensure resources were available for patients not experienced in technology. Our survivorship team increased tele-

phonic delivery and EMR utilization for Survivorship Care Plans and supportive resources, which served as a connection point to discuss well-being and outline our expanded virtual services. Survivorship is a unique and individualized process for each patient. Through identifying barriers and gaps in care due to the COVID-19 pandemic, optimizing the value of technology ultimately increased access to our survivorship services.

### CLINICAL VALUES OF WEIGHT LOSS AND ALBUMIN LEVELS TO PREDICT SURVIVAL IN PATIENTS WITH ADVANCED PANCREATIC CANCER

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Cancer-cachexia is characterized by progressive unintentional weight loss and loss of lean muscle mass. Cachexia negatively impacts treatment outcomes and quality of life, resulting in premature death. The impact of changes in weight and albumin levels on survival in patients with advanced pancreatic cancer has not been well understood. The purposes of this study were to 1) describe weight loss patterns and changes in albumin levels between the first and last hospital admissions based on BMI, and 2) investigate the clinical implication of changes in weight and albumin levels for the survival of patients with pancreatic cancer. A retrospective analysis of de-identified data using a descriptive comparative design was conducted. The sample includes 106 patients who were hospitalized at least 3 days between 2014 and 2017 (IRB#201703076). Inclusion criteria: 1) 18 years or older, 2) diagnosed with stages III and IV pancreatic cancer. Measurements: Demographic characteristics; days between the first and the last admission recorded; percentage changes in weight, BMI, and albumin levels between the first and last hospital admission recorded. BMI at first hospital admission was used to categorize patients into four groups (underweight = BMI <20kg/m<sup>2</sup>, normal =20kg/m<sup>2</sup> <BMI <25kg/m<sup>2</sup>, overweight =25< BMI <30kg/m<sup>2</sup>, and obese =BMI >30kg/m<sup>2</sup>). The mean age was 65.6 years old. 59% were male and 85% were White. Number of days between first and last admission was not significantly different among the four BMI groups. The average percentage of weight loss was highest in obese group with 13.3% and lowest in underweight group with 1.5%. The mean percentage of albumin change indicated a decrease of 23% in the underweight group, 13.8% for the normal-weight group, 19.3% for the overweight, and

20.3% for the obese group. Further analysis is still in progress to examine the clinical impact on patients' care. Complete findings will be available at the time of the presentation. Findings indicated that albumin levels were decreased the most in both underweight and obese groups compared to the normal-weight group. Changes of albumin levels should be examined closely, which may be crucial for early intervention for cachexia. It is innovative to use the clinically available data such as weight and albumin levels to evaluate the metabolic status and provide early intervention for cachexia.

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## INTERNATIONAL

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### THE EDUCATION, TRAINING AND SUPPORT NEEDS OF YOUNG CANCER NURSES

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Continuing professional development is a priority for early-career nurses, and critical to support student nurses' transition into the role of registered nurse and foster career satisfaction in the long-term. Despite a wealth of information about the challenges of early-career nurses in generalist practice settings, there is limited understanding of the needs and challenges of early-career nurses practising in specialist settings such as oncology. This study aims to explore the education, training and support needs of young cancer nurses in Europe. Registered nurses under 35 years of age and working in an oncology setting in Europe (n=20) were purposively recruited to the study via viral sampling strategy. Participants took part in semi-structured focus groups (n=3) or interviews (n=2) discussing their professional experiences as a young cancer nurse and issues with which they required support to ensure professional development. Data were analysed thematically. The experiences and needs of young cancer nurses were represented in four overarching themes: Education & Professional Development, Acculturation to Clinical Cancer Nursing, Conceptualisations & Aspirations of Young Cancer Nurses & Needs of Young Cancer Nurses. Young Cancer Nurses identified specific challenges in accessing education due to barriers associated with time, financial and personal commitments and employer endorsement or support. Adjustment and acculturation to the specialist area of cancer nursing was affected by a variety of factors in-

cluding induction, availability and quality of mentorship, and workforce factors. Despite perceived challenges, participants described self-motivation and personal sacrifices to engage in personal and professional development to provide the highest standard of care possible to cancer patients. Furthermore, young cancer nurses described their ambitions to be role models, mentors and leaders in their current and future cancer nursing roles. To achieve these ambitions, young cancer nurses described specific needs relating to the accessibility of education and training opportunities, including considerations of equity and mentorship. Entering the specialist field of cancer nursing was a challenging experience for young cancer nurses, requiring significant personal investment to ensure appropriate professional development. Where barriers to education and training were insurmountable, findings suggested that designated professional mentorship from experienced cancer nurses could support young cancer nurses to develop confidence and competence in cancer care.

#### **QUALITY OF LIFE OF EGYPTIAN CANCER PATIENTS IN RELATION WITH QUALITY OF INFORMATION GIVEN BY NURSES**

**Nagwa Elkateb, DNS, National Cancer Institute, Cairo University, Cairo; Wedad Monir, DNS, National Cancer Institute, Cairo University, Cairo**

The concept of quality of life (QOL) refers to the ability to enjoy normal life activities; it is a complex combination of satisfactory functioning in essential four core domains: physical, psychological/emotional, social and spiritual. Quality of life is an important aspect of care in the clinical setting; nurses can improve patients' quality of life by ensuring they are competent in daily practice, and by giving patients a high quality holistic care based on safe, effective. Aim: (a) To evaluate the quality of life of cancer patients in relation to different treatment modalities. (b) evaluate the impact of the information given on the quality of life. A convenient sample of adult cancer patients and nurses recruited from a university hospital, Cairo, Egypt. Data were collected through self-administered questionnaire for nurses and structured interview for patients. Tools used: EORTC QLQ-C30 (Version 3) and QLQ-INFO25. Data analysis includes descriptive statistics of relationships between key variables; physical, emotional, social wellbeing, type of information given and quality of life. Results revealed significant correlation between Lack of information and low quality of life. Patients expressed their needs for more clarification about treatment side effects and how to

cope in the future. Quality of life should be assessed frequently by nurses throughout treatment phases to identify patients at risk. Nurses also should emphasize on proper patients teaching and counseling to promote physical psychosocial balance and improve quality of life.

#### **THE CHALLENGE OF TRANSFORMING EDUCATION FOR THE FUTURE OF NURSING EDUCATION**

**Sanghee Kim, PhD, Keimyung University, Daegu**

The study of molecular genetics is very necessary to build basic knowledge to care for cancer patients. Yet to this day, many nurses have graduated and taken care of patients in clinical practice without getting enough learning about tumor molecular genetics. The study was a survey of 134 nurses working in hospital wards for cancer patients and examined the education content of tumor molecular genetics they needed to care patients in clinical practice. In this study, the demand for education on tumor molecular genetics required by the nurses in clinical practice was high. The four subjects with high educational needs of the participants were: (1) tumor molecular profiling, (2) predictive immunological markers, (3) strategies to empower cancer patients such as non-pharmacological interventions, and (4) patient safety and ethics. In universities, nursing educators need to constantly check the educational needs of clinical nurses to train potential prospective caregivers. In particular, various in-depth studies are underway in the oncology field and the development of the field is fast, so nursing education will have to respond to this with the development of a new education curriculum.

#### **"TREATMENT SUMMARY AND SURVIVORSHIP CARE PLAN": TRANSLATION, CROSS-CULTURAL ADAPTATION AND VALIDATION FOR BRAZILIAN BREAST CANCER SURVIVORS**

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Treatment Summary and Survivorship Care Plan (TSSCP) model corresponds to a set of actions for the

care of breast cancer survivors. Originally in English and later in Spanish, for the American Hispanic population, called TSSCP-S. The project objective was to translate, validate and cross-culturally adapt the TSSCP-S for Brazilian breast cancer survivors. This was a methodological study, developed in 2 phases. Phase 1 consisted of cross-cultural adaptation by a consensus assessment committee, composed of professionals with experience in Oncology. The TSSCP-S was made available on the Google Form® platform, containing the following options at the end of each session: keep the item in its entirety, change or delete it. The evaluators were also invited to classify the model based on the 21-item evaluation form proposed by the author of the original version on a Likert-type scale, to evaluate the categories: content, clarity, usefulness, cultural and socio-ecological responsibility. In phase 2, the TSSCP translated into Portuguese was evaluated by a consensus-building committee, composed of women survivors of breast cancer, followed up in the last 5 years (2013 to 2018), attended at an oncology hospital in the city of São Paulo, from July to August 2020. The evaluation of the Concordance Index (CI) was performed through analysis using Kendal's W. Phase 1, the TSSCP-S was evaluated by ten specialists with an average of 10 years of experience in Oncology, composed of nurses (4), doctors (2), physiotherapist (1), nutritionist (1) and psychologist (1). Phase carried out in two rounds, with an alteration of 33 and exclusion of one of the 34 sessions of the TSSCP-S, obtaining CI of 69.92% in the first round and 82.32% in the second. The evaluation of the 21-item form showed a CI of 74.96% for the concepts good, great and excellent. In phase 2, the validation included 12 women breast cancer survivors, with an average of 57.8 years, 33.3% finished treatment in 2016, 41.7% in economic class B2, 25% in stage T1MoNo, 41, 7% with luminal histological type B, 58.3% underwent surgery, chemotherapy and radiotherapy, obtaining a CI of 93.42%. The TSSCP-S validation and cross-cultural adaptation process reached a CI greater than 70% in all stages of evaluation. This instrument will stimulate care for cancer survivor in a systematic way in Brazilian cancer centers.

### **COVID-19 PANDEMIC IN BRAZIL AND ONCOLOGICAL ASSISTANCE IN PUBLIC AND PRIVATE INSTITUTIONS: COMPARATIVE ANALYSIS**

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Covid-19 Pandemic has reached high levels of confirmed cases in Brazil and mortality in regions with higher population density and social vulnerabilities. Health actions to mitigate losses and all of these related to the care of cancer patients have been carried out both in the public health system and in the private system. The objectives were to compare the plans for maintaining oncological care instituted in the public and private institutions during the COVID-19 Pandemic period and its repercussions. This was a descriptive, qualitative study in two large institutions, cancer treatment centers, in the city of São Paulo, São Paulo, Brazil. The institutions followed the some sources of guidelines to construct the administrative-assistance plans, such as international oncology societies and the Ministry of Health of Brazil. Security measures were adopted by both institutions, such as adaptation of the environments, reduction of the flow of people, use of personal protective equipment by professionals, rescheduling of patients for medical and nursing teleconsultations; changes in therapeutic plans to reduce patient exposure, among others. The major perceived difference is found in the access of cancer patients with greater social vulnerability to the health service in an ideal time for screening, early diagnosis and treatment. The high demands for the care of patients with COVID-19 brought an overload to the public service at all levels of care, a situation not experienced by the patient in the private health network. Conclusion: mitigation measures are common for the protection of cancer patients undergoing treatment or follow-up. However, a negative impact can be seen in patient at the public institution due to the difficulty of access to cancer treatment centers. Innovation: the perception of these differences indicates the need for the establishment of recovery plans in oncology care in the public network.

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

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### **FACILITATING CHAOS: CODE RESPONSE AMIDST COVID-19**

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Cancer hospitals and clinics are faced with making rapid changes to policies and procedures when caring for oncology patients during a pandemic. To protect both staff and patients from exposure to COVID-19, the Code Committee of an academic medical and cancer center revised code team roles and protocols. These changes included utilizing a mechanical chest compression device, wearing airborne precaution personal protective equipment (PPE) to perform CPR, restricting number of staff in the room, and keeping the door closed during the duration of the code. An education plan was created to assist with change implementation, including providing education, completing simulated mock codes, and debriefing. Nursing Professional Development Practitioners (NPDPs) rounded frequently with staff, discussing changes and answering questions. To thoroughly teach the code response changes to staff, the Clinical Staff Education department chose to simulate mock codes in inpatient, interventional radiology and infusion room areas. Select clinical staff were trained using the chest compression device. During the simulated mock codes, initial responders were identified, given a patient scenario and briefed on their role in the code. NPDPs recorded significant times, both inside and outside the room, and noted general observations. After the simulation, a group debriefing was facilitated. As a result of these changes, clinical staff, including doctors and ancillary staff, reported feeling more comfortable and prepared to respond to patient emergencies amidst the pandemic. Post-simulation data, findings and questions were communicated to department leadership, clinical administration and the Code Committee. Findings included (a) Average time a responder doing compressions was between four-six minutes, (b) Code team average response was three-five minutes (goal <5), (c) Nursing staff consistently followed the new guidelines, (d) Communication with a closed door was difficult, and (e) Confusion with new roles. The hospital is continuing with this process for all patients in the hospital. Mock codes continue to be provided for clinical staff, with outpatient areas now included, as well. Communication challenges are being improved, and roles are being clarified. Due to the positive response from staff and administration, routine code training will continue in the organization, regardless of the pandemic environment.

## **CARDIOTOXICITY AFTER ANTHRACYCLINE CHEMOTHERAPY IN INDIVIDUALS WITH NON-HODGKIN LYMPHOMA: A CONCEPT CLARIFICATION**

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Individuals with Non-Hodgkin Lymphoma are consistently treated with anthracycline chemotherapy regimens, despite the well-documented history of cardiac sequela. Anthracyclines are most often associated with heart failure and cardiomyopathy, yet the range of cardiotoxic changes is not clearly defined. As cancer survivors are living longer, there is a need for cardio-oncology research, to understand how cardiovascular health is impacted by cancer treatment. The purpose of this project was to report a concept clarification of cardiotoxicity after anthracycline chemotherapy for individuals with NHL. A literature search was conducted using PubMed for terms representing cardiotoxicity, anthracycline, and Non-Hodgkin Lymphoma. The Norris five-step method of concept clarification was followed; to analyze the literature, identify key themes, create a model, operationalize the definition, and develop hypotheses to explore the meaning of the concept. A total of 29 references met criteria for inclusion in the analysis (2000–2019). The following themes were identified: structural and functional changes, electrical changes, timing, and risk factors based on previous cardiovascular disease, age, and cumulative anthracycline dose. An operational definition was proposed: Cardiotoxicity after anthracycline chemotherapy in individuals with NHL is a dynamic process of structural, functional, or electrical change, resulting from exposure to anthracycline, that negatively affects cardiac cells. Cardiotoxicity exists on a measurable continuum, from asymptomatic to symptomatic cardiovascular disease. From that definition, the following hypotheses were proposed: 1) Exposure to anthracycline chemotherapy leads to a dynamic process of change in the myocardium that results in electrical, structural, and functional cardiac change, 2) Anthracycline chemotherapy contributes to cardiac changes on a continuum from subclinical changes observable with instrumentation to symptomatic disease and mortality. A model was created to visually depict this concept. Clarifying this concept can improve nurses' understanding of the cardiac effects on survivors of NHL. The comprehensive operational definition can be used to develop systematic guidelines. This will enhance the nurses' role in identifying patients who are likely to develop cardiac sequelae and improve consistency with assessment, monitoring, and providing tailored education for cancer survivors.

## MANAGING MEDICAL EMERGENCIES IN AMBULATORY ONCOLOGY: IMPROVING CLINICAL STAFF SKILLS AND CONFIDENCE

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Oncology patient care increasingly takes place in ambulatory settings with corresponding risk for cardiac arrest (CA). Due to the infrequency of CA emergencies BLS skills are underutilized, 60% of surveyed staff (58/98) reported not being involved in a cardiac arrest event in over a year and 74% of staff reported their confidence  $\leq 3/5$  on a 5 point Likert scale. The survey results indicated there was a lack of confidence in responding to high acuity, low frequency events. The purpose of this initiative was to assess confidence in managing a CA and implement an educational program to improve staff skills and confidence. A two course program was developed related to CA management. The first course included a didactic lecture, demonstration of BLS skills, and a review of equipment utilized during an emergency. The second course, utilized the hospital simulation center and provided an opportunity for staff to practice managing a CA. In the simulation setting educators used an innovative educational technique called rapid cycle deliberate practice (RCDP). Only 26% of staff rated their confidence  $\geq 3/5$  prior to the educational program. After attending both courses, staff confidence increased, with 100% of staff rating their confidence  $\geq 3/5$ . Staff reported that the simulation-based education was highly enjoyable and valuable. Simulation-based education is effective in improving the skills and confidence of ambulatory staff in response to CA emergencies. Nursing leadership support is key in facilitating staff attendance at educational programs. This educational initiative is the first step in a comprehensive response plan. Future plans include a multidisciplinary in-situ simulation that incorporates ambulatory staff, EMS providers, and ED staff with the simulated patient being transported from the ambulatory setting to the ED for treatment. RCDP is a simulation based instructional strategy to enhance learner skills and confidence in an innovative format. RCDP includes dividing the educational content into manageable informational sections and repeating the clinical skills until they become routine. Within 90 minutes, participants went from operating as a disorganized team to resembling an effective rapid response team. This educational initiative is an example of RCDP effectiveness in improving staff skills and confidence

in CA emergencies and could be used to teach management of other oncological emergencies.

## PREPARE FOR THE WORST: UTILIZING SIMULATION AS A TEACHING MODALITY FOR MANAGING HAZARDOUS DRUG SPILLS

Caitlin Brecklin, MSN, RN, OCN®, CMSRN, CHPN, Froedtert and the Medical College of Wisconsin, Milwaukee, WI

Managing hazardous drug spills is a scary topic for most oncology nurses. It is a high-risk exposure event that does not often occur. Traditionally, training was provided in a lecture type format. Learners expressed on course evaluations the need for hands-on training for this critical skill. Additionally, with the implementation of USP <800> standards, the management of a small hazardous drug spill changed to be a new, nurse-driven process. The purpose of this project was to provide effective high-risk, low-volume training to the inpatient and outpatient oncology RN by transforming the current training into an interactive modality, based on staff feedback. The didactic, lecture-based education was transformed into an interactive simulation scenario which included a realistic situation. Colored water was spilled onto the ground to accurately represent a hazardous drug spill. Learners then had to actually manage and clean the spill utilizing the correct precautions and disposal according to the policy. This included interacting with a patient, donning and doffing of the appropriate personal protective equipment, cleaning the spill with a spill kit, and disposing of the waste materials. This allowed the learner to physically experience this high-risk, low-volume skill so that they would be better prepared if this ever occurred. A post-simulation evaluation was utilized to measure the effectiveness of this transformed education. The results showed a 22% increase in knowledge and a 19% increase in confidence in the inpatient and outpatient oncology nurse. Additionally, when a spill occurs, a debrief is conducted with the staff involved. Staff have expressed that when the actual event occurred, they knew exactly what to do since it had been practiced previously. By the nature of their job, the oncology nurse is working with hazardous drugs. We do the best we can to prevent a spill from occurring, but it is essential to prepare for the worst. By utilizing alternative education modes, we can provide a safe and effective way to practice this necessary skill in a no-risk environment. Other institutions may find it valuable to train nurses for this high-risk skill in a creative, no-risk environment via a high fidelity simulation modality.

## ACUTE INFUSION REACTION DOCUMENTATION IN THE ELECTRONIC MEDICAL RECORD

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Acute infusion reactions (IRs) occur on a daily basis in outpatient infusion areas. Many drugs that are used to treat cancer (i.e. chemotherapy, monoclonal antibodies, immunotherapy, etc.) have reaction potential. Proper documentation of IRs is imperative to patient safety and can assist with coordination of care across departments. This became evident at Lehigh Valley Health Network's (LVHN's) Cancer Institute where patients can receive treatments between multiple infusion sites and, at times, might require transfer to a higher level of care (i.e. Emergency Department or inpatient unit) as a result of their reaction. The purpose of this project was to (a) create a Hypersensitivity Reaction (HSR) documentation tool in EPIC Beacon, specifically within the Infusion workspace, and (b) identify pertinent areas within the electronic medical record (EMR) where IR documentation details populate for oncology departments to view. LVHN's Oncology Clinical Informatics team built an HSR narrator within EPIC Beacon for IR documentation. The intent of the narrator is to have one place to log all IR events for that particular episode including start time of reaction, drug that patient reacted to, patient's symptoms and vital signs, medications ordered/administered for IR, patient's outcome, grade/type of reaction, and end time of reaction. IR details also appear in two additional areas within EPIC Beacon: the patient's Storyboard and the Synopsis. Creation of the HSR narrator has proven helpful to LVHN's Cancer Institute. All IR details appear as events in an event log and are easily accessed from a special report. Customization of this charting area was time consuming but is now ideal and has met the needs of documenting IRs in the infusion areas. For oncology departments outside of the infusion areas (i.e. Medical Oncology, Radiation Oncology, etc.), having IR information available in two other areas of EPIC Beacon assists with treatment planning. All oncology departments can view the date of the most recent reaction, what drug the patient reacted to, and the grade (severity) of the reaction. The EPIC Beacon EMR system has not yet designed a specialized narrator specific to IR. This creates a future opportunity to implement such a narrator for the purpose of standardized IR documentation across oncology infusion areas that utilize Epic Beacon as their EMR.

## UTILIZING A GENOMICS TAXONOMY: FACILITATING GENOMICS SAFETY IN THE BIOMARKER-DRIVEN ERA OF PRECISION ONCOLOGY

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Genomics is fundamental to cancer care and foundational to oncology nursing practice. However, genomics knowledge of practicing oncology nurses is limited and few have had genomic content during educational preparation. The rapid influx of biomarkers, biomarker testing with new technologies and targeted therapies into cancer care necessitates use of accurate and consistent terminology reflecting current evidence. Understanding these foundational terms and concepts is critical to reduce errors, confusion in practice, and increase care quality. There are many genomic patient care quality and safety implications including: Incorrect or no testing; missed or incorrect genetic professional referrals, interventions and/or therapies; test result misinterpretation; patient/family confusion; and possible missed opportunities for cancer prevention and effective cancer treatment. The objective was to establish a Genomics Nursing Taxonomy consisting of an overarching subject category, associated terms with definitions, graphics, and clinical examples. The Oncology Nursing Society (ONS) established a Genomic Advisory Board (GAB) of genomic nursing experts which conducted a membership survey to inform genomic action items and found term definitions were needed. A GAB Knowledge group was established which: identified terms that required definitions based on the survey and expert input; used established peer reviewed definitions; identified companion graphics; crafted clinical examples; and categorized terms based on utilization in practice. The resulting taxonomy then went through peer review with the GAB. The ONS Genomics Taxonomy launched August 2020 and can be accessed on the ONS Genomics and Precision Oncology Learning Library <https://www.ons.org/learning-libraries/precision-oncology>. Consistent use of accurate terms will begin to be represented in all ONS materials. The taxonomy consists of 6 categories with 88 individual terms and many include clinical scenarios and/or graphics. We plan to survey the ONS membership in 2021 to gain insight into taxonomy functionality, if it improved knowledge and understanding, and whether

they applied these terms in practice. This taxonomy serves as a foundation for oncology nurses to be fluent in these terms, the underlying concepts and their applications in practice. Use of this standard taxonomy enhances communication amongst healthcare professionals and supports nurses when they educate patients/families about genomic concepts. As the evidence base continues to evolve and expand, so will this taxonomy to reflect the current evidence and support oncology nurses integrating genomic into their practice facilitating safe, quality patient care.

### **GOING VIRTUAL: REIMAGINING THE DELIVERY OF CONTINUING EDUCATION THROUGH A VIRTUAL CE LIBRARY**

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Oncology care at NCI designated academic medical centers is conducted within the landscape of ever-changing scientific advancements. Nurse practice must constantly adapt to these state-of-the-science advances, and continuing education (CE) programs are integral to the support of new knowledge and innovations. In 2020, COVID-19 mandatory quarantines limited the opportunities for nurses to attend in-person national meetings and obtain CE credits. The purpose of this project was to design, produce, and implement innovative and readily accessible CE content through a virtual library supporting achievement of oncology certification, maintenance of licensure, and adherence to regulatory standards. Within one month, a new virtual platform was established. A repository of content was curated through recruitment of subject matter experts for live webinars, collection of previously recorded presentations, and the conversion of in-person classes to remote learning; resulting in the availability of 39.9 CE contact hours of internally produced content. These offerings spanned multiple content areas creating a breadth of opportunities to meet individualized CE needs. All content is available on demand on an externally accessible website. A collaborative approach was key to quickly pivot to align with a call to action from nursing leadership and staff to address current gaps in CE attainment. COVID-19 further highlighted these existing gaps and created new challenges for registered nurses to have equitable access to educational offerings. Providing virtual content delivery has greatly im-

proved the convenience and accessibility of oncology education, allowing staff to meet individualized professional development goals while navigating the limited time away from patient care. This newly created CE content is also utilized by clinic leadership for various education needs such as: residency and dedicated education unit programs, onboarding of new staff, and unit-based education. These offerings were extended to organizational community and affiliate sites, further promoting the importance of quality nursing education in the support of oncology nursing practice. Solicited participant and clinical leadership feedback continues to guide the programmatic growth and development of education tailored to unique clinical area needs. High value is placed on continual professional development and life-long learning, yet primary nursing responsibilities create barriers to engagement. Providing integrated and convenient forms of CE delivery promotes nimble learning, resulting in improved patient outcomes and healthcare delivery.

### **ONCOLOGY PATHWAY TO PROFICIENCY: DEVELOPING SUBJECT MATTER EXPERTISE IN NURSES NEW TO ONCOLOGY**

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Providing comprehensive oncology nursing care requires advanced knowledge and clinical experience, culminating in clinical expertise. A systematic, step-wise approach to building knowledge utilizing a variety of online and in person courses creates a robust curriculum for the novice oncology nurse. We sought to characterize requisite courses and establish an Oncology Pathway to Proficiency (OPTP). Our facility has 8 different oncology areas and an ICU supporting acutely ill cancer patients. This project identified key educational components that were needed in all of the oncology units. Historically, courses related to oncology were made available for registration to any nurse working in the facility. Each manager and unit clinical educator team approached use of these courses based on staffing availability and unit assessment of needed content, however, attendance was not consistent between hires on each unit or across multiple units. By creating a database of nurses in the oncology service, we were able to see patterns and gaps in courses attended. We were also able to elicit if the course was utilized during orientation and/or the first 2 years of practice. Due to the sequentially more complex and challenging nature of

course content, creating a stepwise approach to course matriculation was necessary. As additional courses became available, we could no longer rely on unit norms or historical knowledge of how we “usually” enroll staff. The OPTP provided a two-year map of professional development opportunities for new graduates and experienced nurses new to oncology. Nurses who adhere to the recommended course schedule are primed to pursue and achieve their Oncology Certified Nurse (OCN) credential. This structure provided a schematic for Nurse Managers and Clinical Educator teams to support new hires. In fall 2019, the patient acuity and census at this research hospital drastically increased. The need for more clinical research nurses (CRNs) to deliver high quality care was recognized. The nursing department quickly addressed the situation by hiring more CRNs. This rapid onboarding has hardwired the use of the OPTP. Standardizing orientation at our facility has improved satisfaction during the orientation process for new employees, preceptors, and unit leadership. The OPTP has led to consistent education and knowledge among nurses. Additional potential benefits to using this pathway include increased patient satisfaction, increased nurse retention rates, and increased certification rates.

### **A VIRTUAL, INNOVATIVE APPROACH TO ANNUAL COMPETENCY VALIDATION USING A TEAM-BASED, INTER-PROFESSIONAL COMPETENCY SIMULATION FOR VESICANT ADMINISTRATION AND EXTRAVASATION MANAGEMENT ACROSS A MULTI-SITE HEALTHCARE SYSTEM**

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Chemotherapy extravasation has a prevalence that ranges from 0.1% to 6% when administered through a peripheral IV and 0.26% to 4.7% when administered through a central venous access device. Inter-professional team work is one best practice that ensures safe administration of vesicants and effective management of extravasations. Simulation in the real work setting with the multidisciplinary team allows for the identification of patient safety threats that can materialize at any time and are previously unrecognized by healthcare providers or hospital administration. The purpose of this project was to create a virtual, inter-professional team-based competency simulation for vesicant ad-

ministration and extravasation management. Secondary goals of the project include improved clinical outcomes, standard use of evidence-based practices and resources and the use of virtual simulation as a viable learning strategy. An interactive pre-simulation eLearning module was created reviewing evidence-based best practice guidelines for administering vesicants, early identification of an extravasation, extravasation management guidelines and post extravasation patient education. A simulation-based team competency was developed. 260 inter-professional oncology staff within the health system participated in a virtual one hour session. Participant feedback was overwhelmingly positive. “Lessons learned” captured from the sessions led to multiple improvements in clinical practice. These included changes in clinical practice, standardization of patient education materials, use of institution policies and evidence-based resources and standardized documentation. A virtual, inter-professional, team-based simulation competency is a meaningful and effective approach to validating staff’s annual competency. Benefits from this session also include increased staff knowledge and enhanced comfort with evidence-based resources when a clinical challenge arises. The session achieved its desired outcome of improving the administration of vesicants and management of an extravasation across a multi-site healthcare system and decreasing the number of extravasations. The capacity to deliver this interactive session virtually created an innovative way to reach staff successfully during a global pandemic. The development of a virtual, interprofessional team-based simulation to validate annual competency on the administration of a vesicant and managing an extravasation to improve clinical outcomes and increase staff’s use of evidence-based practice resources when addressing clinical situations across a multi-site healthcare system.

### **CERTIFICATION MATTERS: DEVELOPMENT AND IMPLEMENTATION OF A VIRTUAL OCN® REVIEW COURSE**

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of a local ONS chapter formed a committee to develop and deliver a review course to members to supplement preparation for the OCN® exam. Due to the ongoing pandemic, this event moved to a virtual platform, thus expanding delivery to local and national ONS members. Review course committee members, all with substantial oncology nurse educator experience, created original content for this one-day educational event. Using the OCN® Blueprint as a guide, members designed an agenda and presentations to address all aspects of the exam, including practice questions and study tips. Committee members were also speakers for the event, with additional support from two local nurse practitioners. A total of 81 national ONS members participated via Zoom, from 19 different states. Demographic data was collected from participants prior to the event (n = 70). Participants in the sample had an average of 16.09 years (SD = 11.22 years) in nursing, with an average of 8.51 years in the oncology specialty (SD = 8.33 years). The availability of nursing continuing professional development (NCPD) credits motivated 74.3% (n = 52) of participants to attend the course. Most participants (84.3%, n = 59) planned to take the OCN® exam within the next year. About 31.4% (n = 22) had taken the exam previously, which included those planning to retake the exam after a prior failure and those who attended the course for professional development. While some participants attended the course for the educational value (as a refresher and to obtain NCPD credit), the majority planned to take the exam and were actively studying. This virtual OCN® review course was highly regarded from positive feedback obtained from evaluations following the event. Possible strategies to improve teaching effectiveness include use of breakout sessions, case study integration, and spacing content into a webinar series. Virtual platforms are useful modalities for education events for oncology nurses. Inclusion of NCPD credit is a benefit to increase participation. Local ONS chapters are comprised of effective educators poised to impact the certification rates in their areas through development and implementation of review courses.

### **INCREASING REGISTERED NURSE AND ADVANCED PRACTICE PROVIDER KNOWLEDGE REGARDING FERTILITY PRESERVATION OPTIONS FOR THE INPATIENT HEMATOLOGIC MALIGNANCY PATIENT**

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Hematologic malignancy patients are often admitted to the hospital on short notice due to the acuity of their diagnosis. An abundant amount of education is provided;

however, due to the need to start therapy quickly, counseling patients on their fertility options can easily get lost among the other important issues. There is a gap in fertility counseling when looking at the number of hematologic malignancy patients in their peak reproductive years receiving oncologic treatments in our inpatient unit compared with the number of those patients seen by our outpatient fertility clinic. Advanced practice providers (APPs) and registered nurses (RNs) on the hematology/oncology unit have expressed a lack of knowledge of options and lack of confidence in discussing fertility with patients. The goal is to increase knowledge of fertility preservation options for inpatient hematologic malignancy patients which should also increase utilization of oncofertility services. A hospital-wide, multidisciplinary oncofertility education committee developed educational handouts for patients and providers. Educational handouts were approved and uploaded into the library of educational resources. Education was then provided in the form of small group informational sessions to the RNs and APPs that provide frontline patient care on the hematology/oncology inpatient unit. Flyers were created to provide concise education and referral information and are posted in the provider workroom. A fertility binder was created and placed at the front of the unit as a resource for all healthcare providers. Surveys were given to RNs and APPs on the inpatient hematology/oncology unit before and after educational sessions were provided about oncofertility. Based on the surveys, there was a 57.8% increase in knowledge of male fertility options and a 77.3% increase in knowledge of female fertility options. There was a 77.3% increase in respondents that knew who to contact if the patient needs more information about fertility preservation and a 75% increase in where to find educational resources. Confidence discussing options with male patients increased by 34.4% and increased by 41.7% for female patients. Prior to educational intervention, a six-month retrospective audit revealed that 23% of admitted hematology/oncology patients were in peak reproductive years however, our data reported a low number of oncofertility referrals. Post intervention data collection is still in process to complete a full six-month post implementation review.

### **LEVERAGING PROFESSIONAL DEVELOPMENT AS INNOVATION: THE IMPLEMENTATION OF AN ONCOLOGY SPECIFIC NURSING FELLOWSHIP**

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Oncology nursing is an expanding specialized field that could benefit from more emphasis at the undergraduate education level. Leading cancer hospitals and undergraduate nursing schools can make a significant impact on developing the next generation of Oncology nurses by intentionally collaborating to better prepare student nurses to meet the demands of Oncology nursing. Executive Nursing Leadership at a large academic medical center recognized the value of raising the visibility of Oncology nursing as a career choice and promoting effective partnerships between leading cancer care hospitals and top nursing schools to help attract and develop future Oncology nurses. Oncology Nursing Leadership partnered with the founder of the Susan D. Flynn Oncology Nursing Fellowship Program to implement the full-time, 8-week summer program offered to competitively selected nursing students enrolled in a 4-year program at a participating nursing school, who have successfully completed their junior year. Program Fellows participate in direct patient care and observational experiences across the continuum of cancer care. Fellows also utilize the principles of Evidence-Based Practice by each completing an Evidence-Based Practice project pertinent to Oncology nursing, which they present at the conclusion of the program. Participation in the Fellowship enhances student's core clinical education through active participation in inpatient Oncology care and exposure to other patient experiences spanning the Oncology service line. The combination of clinical education and exposure to world-renowned cancer care offers undergraduate nurses a unique opportunity to learn how to skillfully deliver compassionate care from expert clinicians and apply what they learn to practice, improving the quality of care for current and future cancer patients and their families. Raising the visibility of Oncology nursing stimulates career interest and provides a vehicle to foster the professional development of future Oncology nurses through undergraduate exposure to the critically important and highly rewarding field of Oncology. Scientific advancements and increasingly complex patient care necessitate targeting undergraduate nursing students to help address the growing need for Oncology nurses. Leveraging an undergraduate Oncology nursing fellowship affords the opportunity for experienced nurses at leading cancer hospitals to serve as preceptors, program managers,

and evidence-based practice mentors to develop undergraduate nurses as future Oncology nurses and provides a much-needed talent pipeline for the next generation of Oncology nurses.

### **SIMULATION-BASED EDUCATION FOR THE ADMINISTRATION OF CHEMOTHERAPY AND BIOTHERAPY FOR NEW GRADUATE ONCOLOGY NURSES**

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New graduate nurses joining the oncology specialty are required to learn complex skills, which often includes chemotherapy and biotherapy (immunotherapy) administration. New graduate oncology nurses hired within Atrium Health participate in an oncology-specific Transition to Practice (TTP) Program consisting of fundamental oncology classes and online learning via the Oncology Nursing Society (ONS) to obtain their ONS Provider Card. Qualitative data obtained from 2017 and 2018 post-program surveys revealed approximately 50 percent of oncology TTP graduates did not feel prepared to administer chemotherapy/biotherapy. As errors in chemotherapy/biotherapy administration can be detrimental and sometimes fatal, emphasis on increasing new graduate oncology nurses' confidence became an immediate priority. The purpose of this project was to explore the effect of implementing simulation-based education (SBE) surrounding chemotherapy and biotherapy administration on the self-perceived confidence of new graduate oncology nurses during their 9-month TTP residency. A literature review was conducted to identify evidence-based interventions for increasing nurses' confidence in administering chemotherapy/biotherapy, and findings supported the use of SBE. Patricia Benner's Novice to Expert Theory served as the project's framework. Project implementation consisted of two phases: (1) obtaining an ONS Provider Card; and (2) attending a high-fidelity SBE session. Prior to implementing SBE, new graduate oncology nurses did not participate in hands-on chemotherapy/immunotherapy administration practice before beginning the competency validation process in their clinical setting. Through collaboration with Carolinas Simulation Center, a simulation scenario focused on the safe administration of chemotherapy and biotherapy for new graduate oncology nurses was developed. SBE sessions began in October 2019, and allow for the application of knowledge obtained from online ONS learning and prior fundamental oncology class-

es, while reinforcing critical thinking skills related to chemotherapy/biotherapy administration, including vesicant administration, dose calculations, order verification, lab interpretation, and safe handling. Dr. Susan E. Grundy's Confidence Scale (C-Scale) was used to measure the participants' confidence level before and after each SBE session. Data analysis revealed a statistically significant difference in the pre-survey and post-survey confidence scores ( $p=.002$ ) at the .05 level of significance ( $n=30$ ). Overall, SBE for chemotherapy and biotherapy administration, following the completion of either the online Fundamentals of Chemotherapy Immunotherapy Administration course or the ONS/ONCC Chemotherapy Immunotherapy Certificate Course increased self-perceived confidence of new graduate oncology nurses and continues to be utilized at Atrium Health.

### IMPROVING PATIENT SAFETY THROUGH STANDARDIZED CHEMOTHERAPY EDUCATION FOR INPATIENT ONCOLOGY NURSES

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A new 17-bed inpatient oncology unit at an academic Comprehensive Cancer Center identified an opportunity to improve chemotherapy safety and nurse education. There were 14 patient safety events related to nursing chemotherapy errors in the two months following the new unit opening. Close study identified inconsistent safety practices and knowledge gaps among nursing staff. This project was to evaluate outcomes in patient safety, nurse knowledge, and competency before and after an educational intervention. This project also served as a pilot for institution-wide adoption as it builds out its oncology program and nurses are trained to administer chemotherapy. The 4-hour educational intervention consisted of small-group sessions covering: safety checks, hazardous drug handling, chemotherapy administration and monitoring. The 29 nurse participants had previously completed a hospital-based chemotherapy competency at time of hire and annually thereafter. Group size was limited to two nurses, to allow close observation of individual practice. Scripts were used for consistency. Sample patients in the electronic medical record and supplies from clinical practice were utilized to create a high-fidelity simulation experience. This project used a mixed methods approach. Surveys were administered prior to the intervention, immediately

following, and three months post-intervention. Surveys consisted of 12 test items to evaluate knowledge and 9 self-rated competency measures on 4-point Likert scale. Sub-analyses explored associations between years of nursing experience, chemotherapy experience, competency, and knowledge. Patient safety events related to nursing chemotherapy errors were quantified before, during and after the intervention. Patient safety events related to nursing chemotherapy errors declined 62% post-intervention. Knowledge and competency measures increased significantly ( $p < 0.01$ ). Correlation analysis indicated a significant ( $p < 0.05$ ) positive association between years of chemotherapy experience and pre-competency. There was also a significant ( $p < 0.05$ ) strong negative correlation between years of chemotherapy experience and pre-knowledge. Notably, while experience was associated with higher self-rated competency, experience did not correlate with higher test scores. This strongly suggests a need for ongoing competency and knowledge assessments and standardized chemotherapy education regardless of experience. Nurses with significant chemotherapy experience were not excluded from the intervention. Analysis of nursing chemotherapy errors can promote the development of an effective educational intervention.

### TRANSFORMING PATIENT EDUCATION: FROM IN-PERSON TO VIRTUAL ENVIRONMENT

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In 2020, Roper St. Francis Healthcare (RSFH) was selected to implement Living Beyond Breast Cancer's (LBBC) Survivorship Series for Young Women Impacted by Breast Cancer. This four-part program educates women-diagnosed under age 45, on survivorship topics while promoting self-efficacy for healthy behavior changes. COVID 19 created uncertainty about the ability to provide patient education in person within the traditional environment envisioned for this program. The Oncology Wellness Team (OWT) converted the live didactic program into RSFH's first HIPAA compliant virtual classroom. The OWT incorporated the concepts of on-line learning experience design (LXD) and adapted the curriculum developed by LBBC. The purpose of this project was to provide access to supportive patient learning activities during the COVID-19 pandemic, engage participants through the implementation of a virtual educational design and the utilization of creative multimedia strategies. The RSFH-OWT modified the LBBC Survivorship Se-

ries from a brick and mortar classroom to a live virtual environment. The pandemic eliminated traditional paper based marketing strategies in clinics and the community. The target audience was reached through mailed invitations, social media posts and navigation contacts. The virtual series was limited to 15 participants and each was sent blind invitations to foster a safe virtual environment that supported the participant's privacy. A "conditions of participation guideline" was developed and implemented to outline best practices for on-line interactions. This project utilized the HIPAA compliant vendor used for internal web based meetings. The web-based program was accessible to anyone with an invitation code and (smart) device with internet/Wi-Fi connection. The series implemented in September 2020, incorporated adult learning methods: visual, auditory, tactile and kinesthetic modalities and basic LXD, aimed to enhance the learner's retention and application of the content; examples included: experiential samples, chat room ice breaker activities, expert guest speakers, videos, open discussion, music, mindfulness, journaling and yoga. Participants were provided pre-post surveys of the program as a self-evaluation of their understanding of the content presented. The target audience time constraints often make it difficult to participate in onsite classes, but on-line series participants could join from a variety of private settings. The project promoted collegiality, incorporating lessons learned, survey feedback and communication between the OWT and Community Stakeholders; future plans include a collaborative design for a patient centric on-line platform for the Oncology Wellness Program.

### **MULTIDISCIPLINARY SIMULATION: CAR T-CELL PROGRAM EDUCATION**

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Chimeric antigen receptor (CAR) T-Cell therapy programs must ensure the multidisciplinary team receives education related to administration and side effect management. Nurses are essential members of the team and are depended upon heavily in the academic medical center setting to administer CAR T-cells, recognize serious side effects, and provide supportive care. The purpose of the nurse driven high-fidelity simulation plan was to ensure nurses and members

of the Stem Cell Transplant and Cellular Therapy (SCTCT) team were able to assess, utilize tools, grade cytokine release syndrome (CRS) and neurotoxicity, manage side effects per policies, and communicate among disciplines across outpatient, inpatient, and critical care settings. Nurse Educator partnered with SCTCT nurse practitioner and SCTCT coordinator to create a multidisciplinary high-fidelity simulation. Prior to simulation, all disciplines received education specific to their roles within the CAR T-cell program. Utilizing a high-fidelity mannequin, in the simulation lab, nurses and members of the SCTCT team practiced drug administration, management of an infusion reaction, assessments for CRS and neurotoxicity, treatment of side effects, documentation, communication, and delegation to appropriate team members, and transfer of patients throughout settings. Effectiveness was measured utilizing a pre and post-survey assessing knowledge pre and post simulation. Among all survey questions, respondents (N=72) noted statistically significant increases in knowledge. Percentage of increase in knowledge ranged from 41.2%–76%. Participants strongly agreed that simulation was an effective clinical learning tool. Comments included "this was excellent", "It is very helpful to practice these assessment before being in front of a real patient", and "I learned so much; much better than listening to a lecture or reading a module". CAR T-cell therapy is unique from traditional treatment modalities. Oncology nurses, caring for these patients, must be knowledgeable in preparation, administration, assessment, and emergency treatment of patients. A high-fidelity multidisciplinary simulation can be utilized to successfully meet learning needs and satisfy accreditation standards for nursing education. Including the multidisciplinary team successfully ensured newly developed tools such as EMR flowsheets/order sets, triage flow-maps, and standards of practice could be implemented as intended and led to positive patient outcomes in the simulation environment.

### **INTRAVESICULAR THERAPY: TRAINING AND COMPETENCY DEVELOPMENT**

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Intravesicular therapy, utilized for the treatment of bladder cancer, involves the instillation of chemotherapy or immunotherapy into the bladder. Historically, the urology clinic at a large academic medical center performed this procedure. To align with new safety guidelines and clinic resources, the cancer center was charged with taking over intravesicular instillations.

Although all nurses in the cancer center are ONS/ONCC chemotherapy immunotherapy certified, no formal training or competency specific to intravesicular therapy existed. The purpose of this project was to develop and implement nurse training and competency for intravesicular chemotherapy and immunotherapy procedures. A core group of four infusion nurses agreed to champion intravesicular treatments. Led by the cancer center clinical nurse specialist (CNS), a multifaceted training and competency approach was developed. First, the urology team, including nurses and physicians, provided an overview presentation of bladder cancer and treatment modalities to the infusion nurse team. Next, infusion nurse observations of intravesicular instillations were arranged with the two urology clinic nurses. Subsequently, the CNS held a tabletop training session which included a detailed presentation of the administration procedure, safety precautions, and patient education. Hands-on demonstration of proper urinary catheter insertion and drug administration process were also provided. Lastly, side-by-side with each of the nurses, the CNS coached and provided real-time feedback for every intravesicular treatment during the first three weeks of implementation. All nurses attended the observations, presentation, and training session. Competence of each nurse was deemed by the CNS upon three successful intravesicular instillations. This was documented via a competency checklist created by the CNS which included the step-by-step procedures of urinary catheter insertion, drug instillation, and safe handling/disposal of contaminated materials and waste. Over the four months since implementation, nurses have expressed increased confidence with and sense of ownership over intravesicular chemotherapy/immunotherapy administration. The specialized training and competency validation implemented for intravesicular chemotherapy and immunotherapy instillations allows for increased staff safety and improved patient outcomes. Going forward, nurses will be annually validated for competence with intravesicular therapy by the CNS. Additionally, when the need arises, additional nurses will be trained via a tabletop training session with the CNS and demonstrate competency with an already validated nurse.

#### **IMPROVING PATIENT UNDERSTANDING OF TESTING IN PRECISION MEDICINE WITH CONSISTENT, PLAIN LANGUAGE TESTING TERMS**

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Patients rely on oncology nurses to simplify complex medical content without professional jargon to make clinical information understandable. Oncology nurses must be able to confidently explain germline and somatic testing and how results may impact treatment in this time of precision medicine. The challenge is the evolving testing landscape, new actionable and emerging biomarkers, and various platforms and scope of testing. Patients experience improved comprehension about why testing is critical when nurses provide successful education that patients can understand. A working group of 23 patient advocacy groups, 5 professional societies, and 19 pharmaceutical and diagnostics companies identified patient confusion and inconsistent terminology as a possible barrier to biomarker and germline testing for cancer patients. This partnership aimed to identify and recommend consistent plain-language terms for somatic and germline testing that are applicable across cancer types. Consistent terminology should improve awareness and understanding of types of testing for enhanced communication between nurses and patients. Following a stakeholder roundtable regarding precision medicine barriers, working group members explored how consistent terms could improve patient understanding. We conducted a framework analysis for testing by cancer type; purpose of test; biospecimen source; terms used in patient education; and preferred plain-language term. The preferred germline testing term was selected using survey results from working group members and 1,700 patients within their constituencies. 33 terms were noted across all cancers in patient education related to biomarker, genetic and genomic testing. Based on survey results and discussions, we agreed to create separate umbrella terms that distinguish between somatic and germline testing with additional context provided for each specific cancer community. "Biomarker testing" was selected for testing for somatic mutations and other biomarkers. "Genetic testing for an inherited mutation" and "genetic testing for inherited cancer risk" were selected for germline testing. A white paper is available at [www.commoncancertestingterms.org](http://www.commoncancertestingterms.org). Consistent, plain language testing terms should reduce patient confusion, improve communication, and shared decision making. The unique relationship

between nurse and patient allows for personalized education regarding testing, treatment decisions, and additional implications like genetic counseling and clinical trials. Oncology nurses can improve best practices in patient education and communication by influencing multi-disciplinary team members to adopt the recommended terms for patient education and by partnering with patient advocacy organizations for patient education on testing/precision medicine.

### **ESCAPING LECTURE-BASED EDUCATION WITH AN ONCOLOGY ESCAPE ROOM EXERCISE**

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Nurse training that includes simulation and demonstration has been recognized as crucial to building a solid foundation of skills and understanding. Benefits of interactive learning include development of critical thinking skills, retention of knowledge, engagement, and active assessment of how the group is learning. Educational escape rooms build teamwork, require time management, develop problem solving under pressure, and foster colleague respect. Oncology escape room was created as a learning activity during annual oncology training for inpatient nurses of a large academic medical center. The goals of the escape room were to: locate specific oncology institutional policies and procedures, review intravenous catheter best practices, complete chemotherapy order review, and build teamwork while having fun. Groups of 5-8 nurses from 4 different oncology units entered the oncology escape room which started by establishing the “rules” and goal of activity. They were given 25-minutes to use clues around the room to solve 13 total puzzles. The answers opened locks on storage compartments containing puzzle pieces. Nurses paired up to work on multiple puzzles at a time for increased efficiency. When put together, the puzzle revealed the solution to the room so they could escape. 156 nurses participated in the oncology escape room, less than 30% had completed an extracurricular escape room before and 12% had completed one for training purposes. 60% successfully solved all the puzzles to escape the room with average time of 22:19. Most other groups were close but ran out of time. Participants enjoyed the activity as a break from traditional, monotonous lecture. Developing the escape room took educators’ time, extensive preparation and planning, and new equipment like locks and lockable containers to be obtained. The escape room worked

well to reinforce practices and behaviors; it would be more challenging for new practices; some attendees needed prompted about how to proceed in the escape room. Large class sizes presented challenges, but they were divided into groups that rotate between multiple stations to allow for smaller numbers in escape room. This was the educators first attempt to create an escape room, plans to use escape rooms for future training are already underway. Given the current trend for interactive virtual activities, a virtual escape room is also being built.

### **VIRTUAL CONNECTION: INNOVATION IN AN ONCOLOGY NURSE RESIDENCY**

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The COVID-19 pandemic has not only transformed how patient care is provided, but also how education is delivered. In response to growing challenges of the pandemic, oncology nurses are improvising and finding innovative ways to create safer learning environments. However, virtual teaching has inherent challenges, and online students must play an active role in their learning. Given restrictions, an academic cancer institute was abruptly tasked with identifying new ways to teach clinical staff. The institution’s 12-month oncology nurse residency program had historically been taught entirely in-person, and fulfilled a dual-purpose of recruitment and retention. The program included various engagement strategies to build connection, such as resiliency workshops, formal mentorship, high-fidelity simulation, and expert panels. As a result, retention rates among new-graduates have significantly increased in the organization over the past four years, while compassion fatigue and burnout rates have dropped dramatically. The fear of losing this vital connection by moving the program to an online platform was felt by both program stakeholders and front-line staff. With the support of nursing leadership, program coordinators developed a refreshed curriculum that included a blended hybrid approach, with limited in-person class time and new online learning components. Live education was delivered in a large auditorium setting, to allow for social distancing, and virtual learning was facilitated through an online classroom. Nurse residents were taught oncology didactic concepts through voiced-over PowerPoints, videos, evidence-based

articles, games, discussion boards, and interactive modules. Zoom meetings were scheduled throughout the program to assist with impactful discussion and cohort cohesion. These virtual check-ins consisted of student-led group dialogue, meaningful storytelling, mentorship, and sharing of experiences. Upon evaluation, nurse residents demonstrated high program satisfaction rates, a life-long commitment to oncology nursing, and a strong desire to stay within the organization. Qualitative data demonstrated the development of durable connection and workplace integration. Nurses were also paid less overtime over the course of the program, due to the asynchronous online content, leading to an improved fiscal responsibility. Emotionally connected learning is possible online, and it starts with relationships. While framing this challenge as an opportunity to innovate, nurse residents have been able to achieve connection with their peers and leaders, while emerging as oncology professionals, despite masks, computer screens, and social distance.

### HOW A PROFESSIONAL ORGANIZATION IS FILING THE GENOMIC EDUCATIONAL GAP FOR ONCOLOGY NURSES

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Oncology care has evolved from treating the primary tumor site with site specific therapy to incorporating genomic and biomarker information that not only provides diagnostic and prognostic information but also guides the selection of individualized plan of care most likely to be effective in an individual. Historically, educational preparation and content in this area has been limited and variable in both undergraduate and graduate education programs. Nurses play an essential role in leading the patient through their care and therefore need to be literate and knowledgeable about both biomarkers and genomics as a whole, and how they affect cancer management to deliver safe and quality care in the era of precision oncology. This presentation will describe the efforts taken by the Oncology Nursing Society (ONS) to describe oncology nurses' understanding of genomic concepts with the long-term goal of developing an awareness campaign, independent learning opportunities, and easy to use point of care resources. A survey conducted in February, 2020 of ONS members (n= 700) explored beliefs and perceived knowledge of genomics. 45% of respon-

dents felt their knowledge of genomics is poor and only 4.5% reported it as excellent. 95-98% believed an advantage to integrating genomics is improved services to patients, better treatment decisions, and adherence to clinical recommendations. 99% see value in learning more about genomics. These results mirror findings in the literature, which have identified a large knowledge gap regarding genomic care in oncology nurses. In May 2019, ONS established the Genomics Advisory Board that includes a diverse group of genomic nursing experts to guide the development of genomic education and practice resources with the goal of integrating this science into practice. Planned deliverables include a genomics taxonomy, case studies, micro-learning and podcasts which will be evaluated through post-tests and surveys after engagement to measure gain in knowledge and change in practice. Nurses at all levels play an important role in providing biomarker education and genomic care to patients. ONS is committed to ensure the current and next generation of oncology nurses understand the science, can apply the latest evidence in practice, and translate this information to patients and families.

### IMPLEMENTING A REDESIGNED STAFFING PLAN TO MANAGE THE COVID-19 SURGE

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By mid-March, New York City had emerged as the epicenter of the COVID-19 pandemic. With minimal time to prepare, NewYork-Presbyterian/Weill Cornell Medical Center (NYP/WC) quickly shifted gears, turning many of the inpatient units and operating rooms into COVID units. In order to accommodate these units, normal operations had to change. Supplemental staffing was obtained and current staffing models were modified. The Oncology census dropped to nearly 50% occupancy on four inpatient units. Simultaneously, the Oncology service was tasked with opening and staffing a COVID palliative care and recovery unit (CRU), while also committing 2-3 nurses to a newly designated COVID unit. A need was identified to create a process to ensure adequate resource allocation while maintaining high quality oncology care during unprecedented times. The goal of this project was to streamline nurse staffing on four units to maximize efficiency and promote equitably among teams. The nurse leaders met to develop and implement a plan that would ensure appropriate skill mix and staffing levels. Volunteers were sought after to

serve as a core team that would staff the CRU. The decision was made to close one Oncology unit and relocate all patients to the other units. All nurses from the units were collated and a “pool” was formed. A system was developed based on seniority to identify a floating process. A centralized dashboard was created and made accessible to all units. The leaders took an active role managing staffing 24/7 until this could be delegated to two senior nurses. To identify effectiveness of the process change, the number of times each nurse floated, ability to maintain skill mix, and secondary impact of enhanced comradery was evaluated. Using the process that was created, the nurses floated on average five times in the 15 weeks that we experienced the COVID surge, totaling 660 floated shifts. Skill mix was maintained 100% of the time. In discussions with the nurses, 90% found working closer with their colleagues across the service to be beneficial. Nurse leaders must be flexible and adaptable during times of crisis. Quick problem solving and anticipation of challenges allows leaders to rally the team amid uncertainty. The leader has the ability to reframe the story line to allow teams to flourish and persevere.

### **CLUB OMMAYA: CREATING AND SUSTAINING A NURSING COMMUNITY OF PRACTICE FOR OMMAYA RESERVOIR ACCESS CLINICIANS**

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Ommaya reservoir access (ORA) devices are an efficient, comfortable alternative to repeated lumbar punctures in patients requiring frequent sampling of cerebrospinal fluid and/or treatment of leptomeningeal disease. In our organization, in conjunction with the state board of nursing, ORA requires highly qualified nurses able to confidently manage a complex procedure with clinical expertise. Maintaining this skill requires a robust program-of-care including a well-defined clinical standard-of-practice and procedure, a comprehensive education and competency program, as well as consistent and coordinated ORA patient care experiences. We sought to strengthen practice and create a community of ORA clinicians. The purpose of this project was to create sustainability in our ORA Competency Program by bolstering the volume and retention of ORA clinicians. ORA is con-

sidered a high-risk, low-volume skill. In order to provide quality care to our patients, the skill is limited to a cadre of expert nurses and clinical nurse specialists (CNSs). We evaluated elements of our ORA program and focused performance improvement efforts on education and competency validation. Nurse Educators, CNSs, and nurses collaborated to create Club Ommaya. The continuum included careful selection and recruitment of oncology nurses proficient with Chemo/Immunotherapy administration having dedicated interest in obtaining ORA competency. Participants attended an 8-hour didactic course including lecture, case study, and procedural demonstration, completed self-study of materials and a knowledge-assessment, demonstrated familiarity with procedural steps by simulating ORA with experts, and oriented to ORA in-situ with preceptors. Competency validation consists of multiple ORA experiences initially and yearly re-validation. Club Ommaya members support precepting of new ORA clinicians and participate in knowledge refreshers annually. Evaluation of the education and competency validation yielded favorable data from participants. By monitoring staff from initial participation in didactic education, through knowledge assessment, skills simulation, and competency validation we were able to hardwire procedures for maintaining this advanced skill and create a supportive, successful community of practice known as Club Ommaya. This group ensures ORA practice is evidence based and is sensitive to patient and nurse safety considerations. Next steps include collaboration with pharmacy to leverage newer hazardous drug closed system transfer technology to improve safety at the bedside and advocate for medications to be dispensed in final form. Additional dissemination of work includes sharing institutional knowledge regarding best nursing practices of ORA.

### **IDENTIFYING AND MANAGING PSYCHIATRIC EMERGENCIES IN THE AMBULATORY SETTING**

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Lack of preparedness to identify and manage psychiatric emergencies in the ambulatory setting is problematic for patients and caregivers. Preparation is key to effectively and safely care for patients and caregivers when a psychiatric emergency is noted. Psychiatric disorders have been shown to affect at least 30–35% of cancer patients during all phases of the disease trajectory and differ in nature according to stage and type of

cancer. Nurse leadership initiated a needs assessment and discovered inadequacy of training and lack of defined processes to navigate team through psychiatric emergencies. A glaring need emerged to identify specific actions to safely manage patients with suspected psychiatric emergency who require psychiatry evaluation and steps to transfer them to the appropriate level of care. Such a process would promote safety for patients and staff and improve staff confidence and competence in the delivery of care. Strategy for the needs assessment included interviews with frontline caregivers, review of case studies, and surveying to establish baseline knowledge, experience, and comfort level regarding the topic of psychiatric emergencies. A variety of modalities were utilized to determine what processes existed, gather baseline knowledge regarding psychiatric emergencies and identification of, and assess comfort level with managing patients in clinic with psychiatric emergencies. Interviews with frontline caregivers revealed very important information about current state; comfort level was very low amongst a variety of caregivers. This same trend emerged via the team survey results which highlighted a startling 42.5% comfort level in managing patients with psychiatric emergencies of 15 total survey respondents. Two case studies with different scenarios were reviewed. Both highlight the need for timely identification of psychiatric emergencies. Screening, identification and access to evidence-based psychosocial approaches for cancer patients in distress must be provided. The need for a standing operating procedure (SOP) and staff education was obvious. Development of the SOP was completed, and education was initiated for our entire cancer patient care center leadership team as a method to help frontline staff members safely negotiate these types of encounters. By having a defined process in place to identify and manage psychiatric emergencies in the ambulatory setting, patient and staff safety is heightened and the quality of patient care is elevated.

### **CREATING A CELLULAR THERAPY SIMULATION COURSE**

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Registered nurses hired to the hematology-oncology units need specific education regarding care of cellular therapy patients. This education should include indications of therapy, infusion protocols, side effects and short and long term complications. Historically,

nurses completed a course designed to prepare them for caring for autologous and allogeneic stem cell patients. With the addition of the CAR-T cell program, a new course was designed to include an eight-hour didactic class and in response to staff feedback, a four-hour simulation class was added. High fidelity simulation allows for participants to practice skills in a safe and controlled environment. By implementing a simulation class, registered nurses new to cellular therapy were able to practice specific skills before independently caring for these patients on the inpatient and outpatient units. Three simulation scenarios were developed which utilized a high fidelity simulation mannequin. The scenarios included verification and infusion of a cellular therapy product, initial neutropenic fever and concurrent cytokine release syndrome and neurotoxicity post infusion of a CAR-T cell product. Participants partnered to complete the scenarios and debriefing took place immediately after each simulation. Participants had the opportunity to review hand on skills and practice assessments before progressing to the next scenario. A post-course evaluation was completed after each simulation class. Overall feedback was positive with staff reporting increased comfort level with administering cellular therapy products and managing known complications of cellular therapy. Neutropenic fever is a common occurrence in oncology and many class participants had already experienced caring for patients with first neutropenic fever. Discussion have occurred regarding replacing this scenario with another scenario more specific to cellular therapy. Additionally, we plan to survey staff who completed the new course compared to those who did not to evaluate if there is a significant difference in comfort level with first stem cell or CAR-T infusion. We will continue to collect data and adjust course content. Future sessions of this course could include providers and stem cell technologists who are new to the management of cellular therapy patients. This class could be modified to include critical care scenarios for intensive care unit staff and providers. Additionally, as registered nurses progress from novice to expert, a future class consisting of more advanced scenarios could be developed for the hematology-oncology nursing staff.

### **USING A RN TELEHEALTH VISIT TO PROVIDE CHEMOTHERAPY/IMMUNOTHERAPY PATIENT EDUCATION**

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New Haven, New Haven, CT; Catherine Sumpio, PhD, RN, AOCNS®, Smilow Cancer Hospital, New Haven, CT

Currently in our cancer center and hematology oncology infusion clinic, there are varied approaches to providing patient chemotherapy/immunotherapy treatment education. During the height of the COVID-19 pandemic, telehealth became more widely used and allowed providers to deliver safe and convenient care to cancer patients. Utilizing telehealth, the oncology nurse can deliver a standardized chemotherapy education session in the convenience and comfort of the patient's home. The purpose of this project was to ensure patient is provided chemotherapy treatment education in a dedicated session scheduled in advance of first treatment administration. We worked with our registration team and information technology specialist to establish a scheduling process for the dedicated teaching session and created a RN scheduling template and telehealth visit type. Prior to the session, patients are sent chemotherapy teaching booklets and regimen-specific drug handouts electronically through the Epic MyChart patient application. To guide the chemotherapy teach sessions, we developed a standardized checklist and documentation note to ensure the RN is addressing and documenting on all oncology practice patient education standards. After the completion of the session, surveys will be sent to elicit RN feedback, evaluate patient satisfaction with the televisit, and guide changes in the future. The post teach survey data will determine: helpfulness of teaching materials, having the right amount of information, confidence in side effect management, and feeling prepared to receive treatment. In addition, Press Ganey® surveys will be monitored to evaluate satisfaction with explanation of what to expect during chemotherapy, and emotional needs addressed. A dedicated chemotherapy teach is a best practice to improve patient satisfaction and knowledge of what to expect prior to first treatment. Patients are often overwhelmed and stressed after the oncology provider visit in which the cancer diagnosis and treatment plan is discussed. When chemotherapy education is provided in a separate visit, patients are less anxious and can better focus on the details of the treatment regimen and side effect management. A standardized checklist and note helps ensure that the teach is thorough and consistent. Telehealth allows the RN to provide effective chemotherapy in the comfort of the patient's home. This reduces the burden of another visit to the clinic and allows additional family members to participate in the session.

## A DATA DRIVEN APPROACH FOR NURSE STAFFING IN AN ONCOLOGY AMBULATORY INFUSION CENTER

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Appropriate staffing in oncology infusion centers is a critical component of patient safety and operational efficiency. This report describes a pilot project in a 59-chair ambulatory infusion center at a large academic medical center. The project goal was to use a data driven approach to nurse staffing to improve chair utilization, patient flow, staff scheduling, and patient experience. In the midst of Covid-19 in Spring of 2020, nursing leadership sought better ways to harness data to make team-based decisions about patient flow, capacity, and scheduling at the institution's largest infusion center. Key reasons for action included: (1) long patient wait times, (2) the need for social distancing during Covid response, (3) uneven staffing patterns, (4) under-utilized chair capacity, (5) providers struggling to get their patients scheduled, (6) over-reliance on weekend overtime, and (7) numerous nurse shift types requiring multiple touches to complete scheduling. Nursing leadership and front-line nurses determined key considerations related to staffing, including number of nurses, preferred shift lengths, and tenure-based weekend schedules. The team collaborated with LeanTaaS to optimize chair utilization based on appointment patterns and staff availability. Information gathered by the nursing team on patient appointment and arrival data was used to create a 6-week nurse schedule template that optimized chair utilization while accommodating patient needs and volumes with fewer nursing shift types (from 13 to 5) while still meeting the needs of nursing staff. Evaluation: Success of this project was evaluated based on key reasons for action. Pre-implementation data was collected from 2/1/20–2/29/20 and post-implementation data from 5/18/20–6/17/20. Patient volumes for these two periods were within 3%. From the pre-implementation to the post-implementation period, median overtime hours per pay period decreased by 86%. Patient wait times decreased by 44% which in turn resulted in less crowded waiting rooms during Covid-19. Optimized chair utilization resulted in 6% decrease in worked hours per pay period. Manager time required for schedule maintenance decreased by 71%. Discussion: Nurse scheduling is a critical

component to balancing patient safety and financial stewardship in an oncology infusion center. With a data-driven approach, patient appointment templates now inform the ideal nurse schedule needed to meet patient demand, which has led to significant operational and financial improvements and improved experience for patients and staff.

## **OUTCOMES OF SUCCESSFUL ONBOARDING EDUCATION FOR ONCOLOGY CLINICAL RESEARCH NURSING PROFESSIONALS**

**Heather Pietschmann, RN, BSN, MS, ACRP-CP, Vanderbilt University Medical Center, Nashville, TN**

Clinical research staff play an integral role in oncology clinical trials conducted at medical facilities. Responsibilities are delegated from the principle investigator (PI) to the staff who assume responsibility for these activities. These activities require knowledge and skill to ensure the protection of human subjects and good clinical practice are maintained throughout the trial. This is critical to upholding the integrity of the study and ensuring validity of the clinical data generated. Effective communication, teamwork, leadership and professionalism round out the basic competencies required by the clinical research staff. In 2018, Vanderbilt Ingram Cancer Center Clinical Trials Office (VICC CTO) educators created a comprehensive training and onboarding program to address inconsistencies in training of new team members and retention issues related to poor training. This was a critical need to enable the organization to retain staff to ensure that patient safety and study integrity continued to be upheld. The purpose is to demonstrate the importance and effectiveness of the onboarding program for oncology research staff through consistent training, evaluation and staff retention. The following interventions are used as part of the onboarding Program: (a) Onboarding plan for the new hire is a comprehensive list of individual, group and hands on learning. (b) CTO Expansion Orientation curriculum and Competency Evaluation is a set of learning objectives with competency assessments. (c) Preceptor-based training consisting of a hands-on training period with a designated preceptor using assessments. (d) Quality Audit Process reviews examples of certain essential activities done by the new employee during precepting period. (e) Manager and employee feedback on the effectiveness of the onboarding process. Interventions were implemented in February 2019 and 16 new clinical employees have gone through the program. The VICC CTO Onboarding Program will be evaluated for effectiveness by gathering data

on the following metrics: employee onboarding competency rate, quality of work, employee satisfaction, management satisfaction, and staff retention rate and rate of retraining required. An effective Oncology Research Staff Onboarding process will enable new staff to learn the needed skills and information to quickly integrate into the team confidently and effectively. Areas where additional education may be needed will be identified and implemented in a timely manner. New staff will be effective in providing advocacy and uninterrupted quality care to research patients, while preserving research study integrity.

## **PROVIDING NURSING EDUCATION IN THE OUTPATIENT ONCOLOGY SETTING DURING A GLOBAL PANDEMIC**

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Seattle, Washington was the initial US epicenter of the COVID-19 pandemic. Hospital initiatives changed, redirecting care to empty beds for possible COVID-19 admissions as well as decanting previously inpatient chemotherapy regimens to the outpatient setting. Nursing educators at an NCI designated outpatient cancer center needed to provide education to the outpatient nurses about the historically inpatient regimens, and rapid practice changes related to the pandemic. No longer could in-person delivery of content and training be provided to due pandemic restrictions, yet education for new practices was essential for quality care delivery. The purpose of this project was to develop the education methods in which clinical policy and practice changes are accessible and feasible for oncology nurses during a time of rapid change and social distancing. Clinic-based nurse educators worked with advance practice nurses, medical providers and pharmacy to build educational content utilizing virtual platforms to deliver for assurance of safety for immunocompromised patients and best practices for staff. Particularly important was education focused on the unique risks of the inpatient regimens so that outpatient nurses could safely administer and identify the adverse effects. Regularly scheduled, in-person education days reviewing policy changes, new chemotherapy regimens, and skills were redesigned as pre-recorded, on-demand videos and virtual-live presentations. All changes were also com-

piled into emails for staff to stay informed of continuous changes. As virtual education was not a standard method previously utilized, ongoing evaluation and feedback is accepted to measure success of this method. Changes are being made with each evaluation and suggestions for improvement. The first virtual education day was presented with the option of watching a selection of videos to best fit the nurse's schedule. Weekly updates transitioned to bi-monthly and then altered to monthly due to staff email fatigue. There continues to be areas of ongoing improvement related to the virtual educational experience. Staff request time away from patient care to review the educational content; however staffing constraints may not allow for this. With increased anxiety and stress, the desire to learn is also decreased as minds are frequently overwhelmed with other stressors. While education is essential during times of rapid change, balancing patient care, staff mental health, and education delivery methods are essential to achieve transference of knowledge, thus best clinical outcomes.

### **UTILIZING INTERPROFESSIONAL PARTNERSHIPS TO BUILD ONCOLOGY NURSES' COMPETENCE, CONFIDENCE, AND ENTHUSIASM TOWARD CARING FOR COMPLEX SURGICAL PROCEDURES AT A COMMUNITY HOSPITAL**

**Kelsey Seidl, MSN, RN, CMSRN, NE-BC, Duke Raleigh Hospital, Raleigh, NC**

This past year, our community hospital on-boarded new surgeons to perform complex free-tissue flap surgical procedures. Post-operative care for these patients was assigned to the medical-surgical oncology unit where nurses typically manage 4-5 patients requiring assessments every 4 hours. However, free-tissue flap management requires careful post-operative monitoring including flap assessments every hour, tracheostomy, and laryngectomy care. The purpose of this project was to develop an interprofessional education plan preparing RNs new to caring for free flap procedures post-operatively with progress measured by RN self-reported levels of competence, confidence, and enthusiasm. A partnership with our health system academic medical center and the community hospital was forged to guide nursing preparation. Education and training occurred over a 7-week period prior to the first free-tissue flap procedure. Opportunities included: live in-services led by each surgeon, respiratory, and speech therapy; simulations for tracheostomy and laryngectomy care; equipment vendor presentations; and printed self-study materials. Additionally,

the two hospitals collaborated to allow the community hospital RNs to shadow experienced nursing care at the academic medical center. Surveys were developed to evaluate self-reported perception of competence, confidence, and enthusiasm in providing post-operative free-tissue flap procedure care on a 1-5 Likert scale. Nurses completed surveys prior to, immediately after the 7-week educational intervention, and 10 weeks post-intervention. During those first 10 weeks, nurses cared for five post-operative patients with breast free flaps and one with head-and-neck free flap. Of 50 RNs, 82% participated in at least one educational opportunity. Baseline, immediate, and 10-week post scores are: Confidence 1.74, 2.67, 3.19; competence 1.74, 2.70, 3.10; enthusiasm 2.41, 3.00, 3.48. Immediately post-intervention, competence and confidence levels increased from baseline by 53% and 55%, respectively. At 10-weeks post-intervention, competence and confidence levels increased to 83% and 78% from baseline, respectively. Baseline enthusiasm was higher than competence and confidence and continued to increase by 24% immediately post-intervention and 44% 10-weeks post-intervention. Interprofessional participation in training and education was key in successfully supporting nurses through planned change. It was beneficial for the community hospital and academic medical center to partner, sharing ideas and experiences while building this program; the partnership will continue as new programs develop. Experienced oncology nurses contributed significantly to increase competence, confidence, and enthusiasm of inexperienced nurses in caring for specialized populations.

### **ENGAGING STAFF IN HOSPITAL BASED AWARD AND RECOGNITION NOMINATIONS**

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The ability for nursing leaders to recognize staff for their empathetic and extraordinary care in a meaningful manner is a powerful tool. Transformational leaders who recognize staff elicit positive impact on their organization and team. Non-financial rewards and praise can be meaningful and can assist with retention of engaged nurses. Women's Oncology Services Ambulatory Unit developed a strategy to ensure unit staff from the breast center, gynecology oncology and infusion clinics had opportunities for recognition and nomination for hospital based and regional awards.

The nursing leadership team collaborated with the breast center RN Coordinator, who served as a Magnet RN lead and shared governance committee member. The RN Coordinator agreed to act as the unit champion for rewards and recognition. She provided award and recognition updates at weekly staff meetings, sent email blasts, notified the team of award and recognition deadlines and coordinated nominations. In the years preceding the nomination of a unit champion, there were limited award nominees and recipients (one to two per year). After implementing the RN Coordinator as unit champion, the number of staff awardees increased each year. For 2017, four nurses received awards, for 2018, six (50% increase) received awards, and for 2019, seven (16% increase) received awards. Also, employee engagement scores increased from a mean of 4.15 (2018) to a mean of 4.35 (2019). The vacancy rate for Women's Oncology Services decreased from 14% (2016) to 2% (2019). Recognition of individual team members augmented staff morale and provided an opportunity for the team to highlight each other's success. When peer colleagues are involved in a newly launched unit initiative, staff are more likely to engage in the initiative. Implementing reward and recognition strategies can increase employee satisfaction and retention rates. Selecting a nursing unit champion had a positive impact on the Women's Oncology unit for staff retention and employee engagement. Furthermore, the appointment of the unit champion provided an opportunity for staff to grow professionally. Awardees were recognized at staff meetings. The unit nursing leaders, chief nursing officer, nursing team, and physicians participated in virtual recognitions.

### **COMPETENCY-BASED EVALUATION TOOL FOR HEMATOLOGY ADVANCED PRACTICE PROVIDER FELLOWSHIP**

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Competency-based assessment is often utilized to assess medical learners in terms of clinical abilities, teamwork, and communication skills. Validated competency-based evaluation tools have been developed to track the progression of physicians in training. In recent years, competency-based tools have been developed by other medical specialties but such tools do not commonly exist for evaluation of Advanced Practice Providers (APPs) training in Hematology. As part of a hematology post-graduate APP fellowship training program, we created a competency-based

evaluation tool. This tool was adapted from the Accreditation Council for Graduate Medical Education (ACGME) to include competencies generalizable to both APPs and medical trainees and also encompass aspects of patient care unique to the APP role. Using the ACGME framework we identified 6 different areas of learner competency, delineated 5 different levels for each competency, and developed a timeline of expectations for completion of these competencies specific for the 12 month training model of APPs. The tool was developed and reviewed by practicing APP providers in hematology and overseen by a hematology physician specializing in the training of MD fellows. The tool contained directions for the evaluator to assess learner milestones based on months of experience in the training program. Evaluators were rated the learner based on required level of supervision for tasks to be completed. Ratings were from critical deficiency to aspirational learner. For the aspirational category, the standard was a fully trained APP with at least 1 year experience requiring no supervision to execute tasks proficiently. Program supervisors used data from these tools to identify specific areas for which to provide learning resources for deficiencies or accolades important for future employment recommendations. Continued use of this evaluation method will track learning progression in our APP cohorts. We plan to collect learner and preceptor feedback to characterize perceived benefits and feasibility of competency based evaluations in APP post-graduate learners. With this tool, we hope to track the progress of our hematology APP learners with insight into specific competencies in which they are meeting milestones. We provide a successful example of an APP-specific assessment tool that can provide preceptors, learners and their supervisors the information they need to track progress and deliver evaluations to APP learners in hematology practice.

### **ESTABLISHING AND SUSTAINING A MULTIDISCIPLINARY ONCOLOGY COVID-19 RESPONSE AND CARE TRANSFORMATION TEAM**

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The COVID-19 pandemic required health care systems to swiftly respond and adapt care delivery. Response to the pandemic presented unique challenges for cancer

care in a multi-hospital academic health system that includes a NCI comprehensive cancer center with sixteen cancer care locations, including a flagship cancer hospital. In March 2020, this health system located in the northeastern United States admitted their first COVID-19 patient and a surge was forecasted. It was essential to maintain services for current and newly diagnosed cancer patients. A multidisciplinary cancer response team formed to address cancer care delivery during the pandemic. The cancer hospital's nursing leader and chief medical officer led the response team of 60 multidisciplinary team members. The team met daily, receiving response updates and identifying specific actions needed for cancer services. It became apparent the complexity of the response required substantial project management. A project manager joined the team, and a framework was established leveraging technology and project management principles. The response team organized the formation of 30 workgroups. Each workgroup was comprised of leaders and frontline clinicians and staff. The groups addressed over 100 action items, which included development of care pathways, relocation of services, and creation of new guidelines. A cancer hospital COVID-19 guide was written containing all new processes. The guide was available to staff in multiple electronic locations for easy access. This guide can be adapted and used as a playbook for future emergency responses. A cadence of communications (daily updates, town halls, community forums) was formed and is now a part of the cancer hospital's standard operations. Reports and dashboards were created for continuous monitoring and transparency of progress. The structure of the team proved successful and evolved to a transformation team that meets weekly. Four working subgroups (ambulatory, inpatient, clinical trials, and supportive services) formed and much of the transformation work leverages the learnings and new approaches taken during the pandemic response. The success of this team demonstrated with the right structure, project management support, and engagement, complex care delivery initiatives can be developed, implemented, and sustained. The framework has enabled innovation in a more agile fashion, noting ability to work towards a new state of cancer care delivery in a timeframe more rapid than once believed.

### **LEARNING AS WE GO: THE ROLE OF THE ONCOLOGY CLINICAL SPECIALIST DURING THE COVID-19 CRISIS**

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The arrival of COVID-19 in early 2020 represented a crisis unprecedented in our lifetimes. For hospital leadership, this meant implementing crisis communication strategies. For oncology clinical specialists, this meant responding to an educational emergency. With expert guidance changing sometimes multiple times a day, a team of nurse clinical specialists/educators at one NCI-designated cancer hospital quickly re-invented how they communicated with clinical staff, colleagues, and each other. They partnered with colleagues across the organization to change workflows, eliminate roadblocks, and disseminate information while supporting nurses and clinical staff on the pandemic's front lines. Educational content included workflow modifications for patient transport, procedures, PPE use and re-use, employee attestation of symptoms, lab testing, precautions, equipment handling and disinfection, drug verification, and patient screening among many others. Tactics used by the team to close knowledge and practice gaps, support rapid change, and enable front line nurses to continue to deliver safe cancer care included the following: 1) Implementation of an online educational module introducing new workflows and COVID precautions, 2) Daily team meetings to coordinate evolving messaging, 3) Strong partnerships with Infection Prevention and Occupational Health teams, 4) Increased staff access to the nursing clinical specialist/educator team 7 days a week, 5) The creation and implementation of new clinical algorithms, operational procedures, and staff training for a Nursing-led COVID Call Center and screening process, 6) Weekly virtual "COVID Chats" with updates for all nursing staff, 7) The creation of a centralized web page with new policies, clinical updates, and training videos, and 8) Virtual panel presentations held to enable nurses to debrief on their experiences. This presentation will examine lessons this team learned about healthcare workforce education during a crisis, including what worked well and what did not. We will critically examine each tactic used, underscoring the importance of unified communication, action-orientation, visible leadership, and prioritization in oncology nursing education both during and beyond a crisis. We will explore online

versus live instruction. Finally, we will discuss how the COVID crisis has created a lasting impact on the team's approach to communication.

### UTILIZING FLIPPED CLASSROOM STRATEGIES TO MAINTAIN STUDENT SATISFACTION IN A HYBRID TEACHING MODEL

**Catherine Sumpio, PhD, RN, AOCNS®, Smilow Cancer Hospital, New Haven, CT; Evanica Rosselli, BSN, MSN, OCN®, Yale New Haven Hospital, New Haven, CT**

Our Oncology Nursing Education and Practice Department values critical thinking and interactive approaches to educating new oncology nurses. We recently incorporated flipped classroom strategies into our Oncology Fundamentals and Chemotherapy Skills classes. When COVID-19 required a switch from in-person to virtual classes, we wanted to maintain the student satisfaction previously achieved with interactive classroom techniques. We opted for a hybrid model, combining livestreamed sessions with recorded video lectures for independent learning. The aim of this project was to develop the model and evaluate student satisfaction. Virtual sessions were conducted using webinar technology. Students engaged using the chat messaging function, allowing simultaneous answers from multiple students, or by "un-muting" themselves to respond to the speakers and ask questions. An educator facilitated each class and monitored the chat function. An audiovisual specialist provided live technical support. Both the virtual and recorded lectures incorporated case studies and questions throughout the PowerPoint presentations. Fundamentals sessions included interactive simulations showing photographed clinical scenarios, and prompting to share potential nursing diagnoses as a group. In Chemotherapy Skills sessions, a whiteboard was used to demonstrate step-by-step chemotherapy dose calculations. The class included a "think and share" activity for vesicant administration. Participants completed post-tests and electronic evaluations. Response rate was 55%. The programs were rated as excellent overall (62%). The ease of accessing the livestreamed classes and video lectures was excellent (65% and 68% respectively). Satisfaction interacting using chat messaging was positive (46% excellent; 46% good), with several commenting that chat allowed them to learn from what others were thinking and questioning. The majority (81%) found that interactivity was suitable for the content. Educators were also satisfied with webinar communication capabilities, having technical support, and facilitator assistance. New oncology nurses were highly

satisfied with the hybrid model. Facilitators found that most participants were already savvy with online learning. The nurses chatted actively with presenters and each other, providing helpful feedback regarding content and connectivity. Participants appreciated having both virtual sessions for its interactivity and the independent module for self-paced knowledge acquisition. The educator team came together within a month's time to develop and launch classes in an innovative way, while maintaining the satisfaction of teaching strategies that were successful in the past.

### ENSURING CHEMOTHERAPY COMPETENCY DURING THE COVID-19 PANDEMIC

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Ensuring nursing competency is a vital component of the nurse educator role. At our institution, a live, well-established and highly rated chemotherapy competency has been in place for several years employing simulation, order verification, and key nursing activities such as spill management, extravasation and hypersensitivity management and independent verification of chemotherapy agents at the chair/bedside. With the COVID-19 pandemic, our department had to ensure that nurses continued to demonstrate chemotherapy competence despite the pandemic and that the competency, no longer live, met needs of staff. The purposes of this project were to ensure that nurses who administer chemotherapy are provided with a meaningful measure of their competency and to ensure that nurses who administer chemotherapy maintain their competency to administer such agents. Content of the year's planned competency is determined by the inpatient and outpatient educators at least six months prior to targeted dates of the competency. Generally, the team plans on content that can be delivered in two hours. A review of safety reports is done to determine any known deficits in chemotherapy knowledge or administration issues over the previous year. This year's topics based on safety reports and changes to existing practice over the past year include: extravasation, hypersensitivity, assessment and documentation of peripheral neuropathy, and an order set verification. The educators met

to determine how to deliver a similar, high-quality competency experience virtually. The group then discussed ways to incorporate the topics chosen with the electronic medical record, published clinical guidelines, and system policies. It was ultimately decided to provide a self-study packet, tracing a single patient's experience over many cycles of chemotherapy utilizing a case study format. The plan will be to have each participant electronically evaluate their experience. Results will be compared to prior evaluations to determine if this self-study exercise compared favorably to the high quality simulation model used previously. The Covid-19 pandemic has forced educators to adapt their content and method of delivery quickly and without data to evaluate effectiveness. This project aims to evaluate the utility of a more traditional method of content delivery. It will be interesting to evaluate how today's nurse rates a simpler method of delivery. Evaluations will determine if the nurses themselves find that this intervention has tested their competency adequately.

### **EDUCATING HEMATOPOIETIC STEM CELL TRANSPLANT PATIENTS AND CAREGIVERS DURING A GLOBAL PANDEMIC**

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Patients undergoing hematopoietic stem cell transplant are faced with complicated conditioning regimens and a cascade of both early and late side effects impacting morbidity, mortality, treatment plan compliance and quality of life. The complexity of this process and its potential side effects necessitates education for both patients and their caregivers. Prior to the COVID-19 pandemic, bimonthly education classes were conducted at the institution's Cancer Welcome Center. These classes were hosted by members of the interdisciplinary team including stem cell transplant nurses, the charge nurse and or/a nurse practitioner and a social worker. The objective of this class was to provide education to transplant candidates and their caregivers. Education addressed in this class included daily activities on the inpatient unit, safety and health

promotion while hospitalized, side effects of the treatment regimen, caregiver responsibilities after discharge, and psychosocial needs along with other education topics. At the beginning of the pandemic, the face-to-face classes were suspended to ensure safety. The nursing team's initial response to the suspension of these classes was to contact each patient a few days prior to their scheduled hospital admission, email the slide show of information that was presented in the class, and to review the education over the telephone with each individual patient and/or caregiver. Common issues with this method were that patients could not always be reached, patients sometimes denied the need for the education, or did not have the time to complete the education during the contact. Moreover, this method was time consuming and did not allow for patients and caregivers to benefit from the questions asked by others going through the same or similar situations. Outpatient social work and inpatient nursing collaborated on the transition to virtual education via a video conferencing platform. Emails were sent out with the slideshow that was presented in the class as an additional reference for patients and caregivers to refer to after completion of the class. Preliminary results from course evaluations show that patients and caregivers rate the presentation of the educational material as excellent, and because of the program experience a decrease in psychological distress, increased quality of life, increased feelings of hope, and fewer feelings of loneliness.

### **BEYOND THE AUDIT: IMPROVING DISTRESS SCREENING PRACTICES THROUGH IMPLEMENTATION SCIENCE**

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Distress screening among the oncology population is a well-established standard of care that focuses on psychosocial matters such as family, emotional, physical and practical problems, and spiritual/religious concerns. Healthcare organizations monitor compliance to these standards by auditing staff performance. Designed to monitor compliance and provide real time education, audits do not provide information about whether the standard is fully integrated in the practice setting. The purpose of this project was to move beyond the aims of quality improvement to determine the effectiveness of our distress screening process.

Specific questions guiding this work included: Are our processes effective in identifying individuals with moderate to high levels of distress? How do healthcare personnel carry out their roles in providing psychosocial interventions? The project team of Nurse Manager, Senior Attending Nurse, and Clinical Nurses from inpatient and ambulatory care units collaborated with nurse scientists to learn about implementation science methods to answer the key questions. The team participated in meetings with the existing distress screening task force and research team to learn about the issues and barriers to successful screening and meaningful follow-up assessment and referrals. An extensive medical record review was conducted to follow the documentation trail. Findings showed that we were not consistently effective in our distress screening efforts. Audits demonstrated successful completion of the distress screening tool in the selected audit samples. However, the electronic medical record (EMR) review revealed differences in practice among healthcare personnel at each step from screening through follow-up intervention by social services, physicians, and chaplains. EMR functionality presented barriers related to location of distress scores and inconsistencies in documentation of follow-up interventions. Work related to EMR revisions began prior to this project but was enhanced by new insights into practice and workflows. Audits alone did not provide essential information on the effectiveness of our distress screening practices. Quality improvement measures focus on whether steps in a process are completed; whereas, implementation science focuses on how team members carry-out the work and whether the strategies are effective. This presentation will present a comparison of quality improvement measures and implementation outcomes. Evaluation of quality efforts using implementation science methods can create new strategies for improvements that have broad implications for a variety of quality initiatives.

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## QUALITY IMPROVEMENT

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### INNOVATIVE STRATEGIES TO REDUCE PREVENTABLE ED VISITS FOR PATIENTS RECEIVING CHEMOTHERAPY

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According to Medicare & Medicaid Services (CMS), the national Emergency Department (ED) utilization rate is 12.5%. CMS will hold hospitals accountable for Outpatient quality reporting program (OP-35) preventable ED visits and hospitalizations by Medicare beneficiaries receiving chemotherapy within 30 days. This measure is designed to assess the quality of care for chemotherapy patients and encourage performance improvement. Approximately 9% of Memorial Hermann Texas Medical Center patients receiving cancer treatments were reporting to the ED for management of symptoms such as anemia, nausea, dehydration, neutropenia, diarrhea, pain, emesis, pneumonia, fever, and sepsis. With early intervention many of these symptoms can be addressed in an outpatient setting. The purpose is to reduce preventable ED visits and create strategies that are cost effective, improve quality of care, and patient experience. The oncology multidisciplinary team collaborated to develop a strategy to address preventable ED utilization and subsequent inpatient admissions. Several support tools for staff and patients were created such as telephone nursing practice guidelines, telephone triage call process, patient handouts, and wallet card. This tool kit educated patients about the side effects, symptom management and when to call the triage line. Since pilot started on June 1st, 2020, the number of triage calls doubled and add-on appointments to the infusion center increased. Additionally, data for June through August of 2020 revealed a 3.9% decrease in post chemotherapy ED visits with OP-35 related conditions. Strategies implemented were effective in reducing preventable ED visits. Effective patient education to call the triage line at first onset of symptoms and concerns resulted in same day interventions and provider visits. Initial success of this project has led to implementing this process across Memorial Hermann network. These new strategies helped reduce the number of preventable ED visits. Monthly data reporting provided an opportunity to identify areas for further improvement. The ED utilization project committee is working with the informatics team to develop a new documentation tool and dashboard to retrieve the data electronically.

### FROM ED TO ONCOLOGY CONSULT: IMPROVING ACCESS FOR PATIENTS WITH

## SUSPICIOUS FINDING IN EMERGENCY DEPARTMENT

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Patients discharged from the Emergency Department (ED) with findings suspicious for cancer can experience significant delays in accessing oncology care. Access barriers include knowledge deficits and lack of perceived urgency amid a complex healthcare system. The purpose of the centralized ED Cancer Answers (CA) process is to streamline oncology access by connecting patients to an oncology nurse navigator (ONN) who assists in rapid access to workup studies and oncology appointments. Upon discharged from the ED, patients are given printed information on the CA service including the 24-hour access phone number. The ED provider or social worker also sends a message to the CA message pool in the patient's electronic health record. Messages in the pool are reviewed by one of 22 ONNs located throughout the Intermountain system and designated as the navigator of the day (NoD). The ONNs rotate being the NoD and are responsible for responding to patients within 24 hours. The NoD connects patients with the ONN and oncologist in the patient's local area. The local ONN assesses for any barriers to care (financial, transportation, knowledge deficit) and staffs with the oncologist to establish a cancer focused workup while keeping the patient informed of next steps. Early results demonstrate that care coordination through the CA process improves timely access to oncology workup, diagnosis, and treatment. ED providers have expressed satisfaction in the smooth transition from ED to oncology care. Additionally, primary care providers are encouraged to use the CA process to connect patients to oncology services. The program is set to be marketed to the statewide population. People can call the CA hotline to be connected to the NoD who answers questions and directs people to oncology services and resources. Metrics currently being tracked include date, caller name, type of request, location, and how the caller heard about the CA program. Importantly, time from suspicious finding to diagnosis and subsequent treatment captures the benefits of centralized care coordination and access to oncology care. The use of ONNs, who are skilled in overcoming healthcare barriers and providing patients with essential care coordination and personalized resources is an innovative approach to patients accessing the oncology care system at the earliest opportunity—suspicious finding or diagnosis.

## LET'S GET MOVING: NURSES' PERSPECTIVE ON EARLY MOBILIZATION AND THE AM-PAC "6 CLICKS" TOOL

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Immobility (bed rest) has detrimental effects on multiple body systems. Early mobilization of patients has been proven to decrease the risk for muscle loss, damage to central and peripheral cardiovascular systems, pressure ulcers and hospital length of stay. Early mobilization can be challenging in acute care settings, including oncology units. Nurses should be educated regarding the high risks of immobility and encouraged to initiate early mobilization. Nurses are trained on the risks of immobility, but still rely on physical therapists to mobilize patients. Use of an evidenced based tool by both nursing and physical therapy would be beneficial for collaborative care. The aim of this project is to assess the oncology nurses' perception and knowledge on the topics of early mobilization and the AM-PAC "6 clicks" tool and to improve nurse's action in mobilizing their patients. A self-learning module was created to reinforce benefits of early mobilization and introduce the AM-PAC "6 clicks" tool to the nurses. A pre-survey was sent to 19 registered nurses working at an inpatient oncology unit in a teaching community hospital to gather baseline data. Finally, the nurses were asked to respond to the post-completion survey to re-measure their knowledge and assess if there was a change in their perceptions. The Pre-intervention survey data showed lack of knowledge on the AM-PAC "6 clicks" basic mobility tool and moderate knowledge on the topic of early mobilization. Most oncology nurses agreed that they would feel more comfortable mobilizing patients if they had more training. The post-intervention survey showed an increase of 43.4 % in the oncology nurses' knowledge of the AM-PAC tool and of 26.3% in their knowledge on the benefits of early mobilization. Nurses also reported feeling more comfortable mobilizing their patients (93.8%), after reviewing the educational module compared to (52.6%) the pre-intervention survey. The educational module increased the oncology nurses' awareness of early mobilization and the AM-PAC "6 clicks tool". It also encouraged them to apply early mobilization with their patients and to feel more comfortable when doing it. It is important

to maintain all patients as active as possible to avoid further weakness and health problems associated with inactivity. Creating a common language for the physical therapy and nursing departments is beneficial for the patients' plan of care.

### **IMPLEMENTATION OF A FAST TRACK CHAIR TO INCREASE EFFICIENCY AND DECREASE PATIENT WAIT TIMES**

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Patients in our busy infusion center at the Johns Hopkins Kimmel Cancer Center in Washington, DC, can sometimes experience significant wait times related to incomplete orders, pharmacy delays, and staffing shortages, to name a few. Injection appointments are generally expected to be 15 minutes in length, but when we looked at check-in times compared with medication administration times, these appointments were actually taking much longer. Upon further investigation, we found that when nurses were given injection appointments mixed in with infusion appointments, wait times were increased related to the acuity of the more complex infusion appointments. This caused frustration for patients and staff alike, who felt that we could make the process more efficient. The purpose of this project was to examine the efficiency outcomes of creating a process to fast track injections, in the medical oncology clinic setting. We worked collaboratively with pharmacy, operations and nursing to design and implement an injection fast track pilot. We assigned 1 nurse daily to administer injections. We separated out lab draws from the injection appointment. We assigned 2 infusion chairs to be fast track chairs and set a maximum number of injections which could be administered daily. We worked with pharmacy to procure a medication fridge, update the Pyxis systems and stock all of the necessary injections on the unit. We defined and tracked injection patient appointment times. Over the course of 3 months, we saw a decrease in the average wait time from 30 minutes to as little as 8 minutes. We are currently averaging about 16 minutes. Our injection patients are appreciative of having shorter visits. As patients continue to get sicker, patient acuities in community infusion settings are increasing. This can lead to longer visit times and higher patient wait times. By creating a

process to fast track injections in the medical oncology clinic, we significantly decreased patient wait times and improved patient satisfaction.

### **NOT YOUR AVERAGE DATA COLLECTION: MEASURING METRICS AND ENHANCING THE ROLE OF THE ONCOLOGY NURSE NAVIGATOR**

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As Oncology Nurse Navigators (ONNs), as modeled by the Oncology Nursing Society (ONS) Core Competencies, we recognize the value and importance of tracking navigation metrics to enhance quality of care, illustrate the value of nurse navigation and to align with major accrediting bodies such as the Commission on Cancer (CoC) and National Accreditation Program for Breast Centers (NAPBC). In our daily practice, we were already capturing important data and interventions, but lacked a formal process. The Academy of Oncology Nurse Navigators (AONN) has identified 35 standardized metrics, quantifying and validating the importance of ONNs. AONN developed these metrics to measure program success in the three main categories: return on investment (ROI), clinical outcomes (CO) and patient experience (PE). From May 2018-September 2020, we implemented the following metrics: (a) Metric #3: Interventions, (b) Metric #6: Patient Education, (c) Metric #29: Psychosocial Distress Screening, and (d) Metric #30: Social Support Referrals. Adoption of these metrics formalized the collection process of statistics so that PE and CO can be improved. Utilization of these metrics can guide referrals to specialized services, streamline and validate the work of ONNs. Developed a metric collection spreadsheet and provided ONNs education on purpose and use. Oncology Clinical Therapists (OCT) colleagues were engaged in a collaborative process pertaining to Metric #29. ONNs captured their clinical practice by tallying interventions, education, and referrals monthly. Adoption of these metrics has increased reportable data to Cancer Committees and adherence to accrediting bodies and validates importance of the ONN role. This baseline data collection contributed to the development of disease-specific ONN positions. Further, the data quantified social and financial support referrals, leading to the development and hiring of both financial counselors and case managers. By implementing the AONN metrics, the

ONNs were able to validate their roles and ability to excel in clinical practice. Some barriers to collecting data were: timely adherence to inputting data, lack of consistent education with newly on-boarded ONNs, and potentially questioning the accuracy of data due to user interpretation. Ultimately, collection of these metrics helped ONNs better identify and navigate patients through the cancer continuum which helped to improve patient outcomes.

## **WORKFLOW DESIGN FOR ONCOLOGY INCIDENTAL FINDINGS**

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Incidental findings are commonly found in emergency department (ED) visit related diagnostic imaging however the referral process from the ED to the cancer center for suspicious findings is not currently well defined. Additionally, it is difficult for patients to self-navigate across the healthcare system to successfully self-schedule a consult. Both instances result in delays in follow-up care and appropriate management for many patients. Early intervention leads to better outcomes for cancer patients. To ensure timely follow-up for these patients, a multidisciplinary team convened to design a clear process. A team comprised of cancer center nurse navigators, ED providers, ED case managers, oncology providers, information technology staff, and nurse leaders collaborated to design the ideal workflow. Tactics included: (a) Review/mapping of current workflow to identify gaps, (b) Future state mapping, (c) Dedicated cancer center nurse navigator assigned to coordinate care for patients with incidental findings, (d) Provider entry of a referral order into electronic health record (EMR) to populate a work queue to be reviewed by nurse navigators and ED case managers, (e) Developing workstreams for in network and out of network/uninsured patients, and (f) Creating a tableau dashboard to track the results. Specific care coordination responsibilities of the nurse navigator include: (1) assisting the patient in establishing follow-up with the appropriate provider, (2) calling each patient, discussing the incidental finding, and collectively formulating a plan for follow up with existing primary care provider (PCP) or specialist in or outside of Vanderbilt, and (3) follow-up with the patient as needed. In the first 3 months of the new process (May 3, 2020 – August 1, 2020), 176 pa-

tients were identified with incidental findings resulting in 88 appointments across Vanderbilt. An example demonstrating value and success of the program was the case of a 64-year-old male presenting to the ED with abdominal pain, found to have a pancreatic mass with liver metastases. The nurse navigator contacted the patient same-day, scheduled the oncologist appointment the following day, and started chemotherapy 6 days later. Additionally, patients expressed uncertainty in next steps following notification of their incidental finding. Patients have expressed a sense of relief when contacted and they are grateful for assistance.

## **HEMATOLOGY/ONCOLOGY READMISSION REDUCTION**

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UPMC Shadyside has a robust inpatient Oncology and Bone Marrow Transplant patient population, with 156 inpatient beds. As an organization, we have noted Hematology/Oncology has the highest readmission rates, with rates as high as 9.8%. According to The Centers for Medicare and Medicaid Services [CMS], avoidable hospital readmissions can be reduced by improving communication and care coordination to better engage patients and caregivers in discharge planning (2020). To reduce readmission rates, the Hematology/Oncology Service Line implemented post-discharge follow-up phone calls. Nursing Leadership contacts all patients discharged to home within 72 hours post-discharge to assure transition of care needs are met. With these calls, Unit Leadership has identified many areas of opportunity, such as ensuring home care was set up, medications were obtained and instructions understood, equipment was delivered, consults were set up, and outpatient Physician follow-up was scheduled. In addition to post-discharge follow-up phone calls, our Resource Oncology Nurse is also retrospectively reviewing 7-Day readmissions from our Hematology floors to identify any areas of opportunity. Shadyside Hospital HCAHPS Care Transition scores for July 2020 were 87%. They have steadily increased since April 2020, when post-discharge phone calls were started. In addition to an increase in HCAHPS Care Transition scores, readmission rates for the He-

matology/Oncology Service Line have also decreased to 6.5% for July 2020. Data is shared on a monthly basis to the Hematology/Oncology Quality and Safety Committee. During these monthly meetings, readmission case reviews are presented to the group and areas of opportunity are discussed on a multidisciplinary level. The committee consists of Hematologists, Oncologists, Clinical Leaders, Nursing Leadership, Case Management, Quality Improvement Specialists, Patient Safety Specialists, and Infection Preventionists. While the post-discharge follow-up phone calls can be time-consuming for Nursing Leadership, the calls have proven to be extremely valuable for both patient and staff. Nursing Leadership utilizes the information obtained from the post-discharge follow-up phone calls and readmission case reviews to implement necessary changes to reduce readmission rates within the Hematology/Oncology Service Line.

### **THE EFFECTS OF UTILIZING DIFFERENT METHODS OF PATIENT EDUCATION ON PATIENT SATISFACTION IN AMBULATORY TREATMENT CENTER (ATC)**

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In today's healthcare environment, patient experience is becoming a top priority, as it has an impact on health outcomes and performance measures. In 2017, the ATC leadership and staff developed a center-based Patient Experience Committee to identify solutions to enhance the patient experience and increase patient satisfaction based on the Press Ganey scores. The team completed a thorough assessment of the identified issues and a deeper dive into one of the survey questions showed communication gaps between patients, clinical nurses, and ATC processes. First-time chemotherapy patients received printed treatment plan information in the centers, then had reinforced teaching once they arrived in ATC. Survey results revealed that the patients believed they receive inadequate communication and information about what to expect during their first-time chemotherapy treatments. The purpose of this project was to develop a more adequate patient education plan focused on first time chemotherapy patients. This project aimed to improve the monthly top box score percentage for

the question "what to expect during chemotherapy" from 53% to 60% or above. A literature review was conducted to explore solutions to improve education and patient experience. Findings suggested the concept of a tour and orientation of the infusion center as a form of teaching that could help reduce anxiety and help patients prepare better for their treatment. An ATC Tour/video task force team was established to plan tours of the ATC and develop a patient education video that is easily accessible. The team collaborated with the Sarcoma and Gyn-Oncology Centers, who hold in-person chemotherapy teaching classes. A process was developed to include a 30-minute tour on their scheduling template where patients can visit the infusion center before their classes. Upon comparing the baseline data and one year of implementing this project, the top box score percentage has increased to 62% and continues to go up. The ATC Video has shown some success through Press Ganey scores and patient feedback. Our goal is to continue assessing needs for improvement to yield high quality care outcomes and increase patient satisfaction.

### **EFFECTIVENESS OF HOURLY ROUNDING: IMPROVED OUTCOMES ON A MEDICAL ONCOLOGY UNIT**

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Patient satisfaction and quality outcomes, such as falls, are key metrics in hospital ratings and reimbursements. The literature shows that oncology patients are at a high risk of falls. Reduction of falls in oncology patients is necessary as many can face serious events from falls in the hospital. Despite multiple interventions and education, our medical oncology unit at a large academic medical hospital continued to struggle with decreasing patient falls and improving the patient's perception of responsiveness. Evidence proves that purposeful hourly rounding reduces patient falls and improves patient satisfaction scores. The purpose of our project was to implement hourly rounding to 1) improve the patient's perception of nursing staff responsiveness 2), decrease falls, and 3) decrease the amount calls and alarms experienced by nursing staff. Our unit utilized several interventions

to implement and sustain hourly rounding. The nursing staff received education about the quality benefits of hourly rounding. Nurse Leaders validated the competency of hourly rounding at the initial implementation and provided the team with ongoing validations and feedback. We also utilized technology to create a system that could assist the staff in documenting their hourly rounds by tracking when they would enter and leave rooms. Nurse Leaders on the unit would validate hourly rounding by observations and audits of the Responder 4 system. Purposeful hourly rounding proved effective at improving three critical metrics over nine months. Our unit experienced a decrease in falls by 20 events or 47% in 9 months, reducing patient bed alarms by 25%, patient call bells decreased by 9%, and our HCAHPS score on responsiveness improved from the 16th percentile to the 32nd. Purposeful hourly rounding proved effective at improving quality outcomes and the patient experience. Buy-in from the staff was essential, and incorporation into our unit culture is ongoing. Nurse Leaders must stay engaged with their frontline staff on purposeful rounding and the quality outcomes. Allowing staff to have buy-in into the accountability and implementation of hourly rounding helped with our success. Publicly sharing the results of the various audits encouraged the team to develop a collegial competition to improve both their individual and unit scores. In hardwiring hourly rounding, our unit will continue to see improved quality outcomes and an enhanced patient experience.

## NEWS IMPLEMENTATION

**Renata Lizak, BS, RN, Wilmot Cancer Center, Rochester, NY**

Patients undergoing treatment for hematologic malignancies suffer from severe neutropenia. This results in increased risk for severe sepsis which can subsequently result in significant morbidity and mortality. Adapting National Early Warning Score (NEWS) has potential to enhance recognition of sepsis and improve healthcare team responses. The purpose of this study is to evaluate the impact of NEWS in patients with oncological malignancies treated at the Wilmot Cancer Center (WCC6). The NEWS was initiated in Oct.2019 by the hospital sepsis committee. Incorporating respiratory rate, oxygenation, temperature, BP and pulse, a number in the electronic medical record is generated after each set of vitals. Values > 7 will notify the Clinical Resource Nurse (CRN) who then evaluates the patient every 8 hours until the number drops < 8. Retrospective analysis was performed on WCC6 patients prior to and after NEWS implemen-

tation. The control cohort was comprised of patients who had a Rapid Response Team (RRT) call during the time periods of Jan.2018–Sep.2019. The research cohort was composed of patients treated during the period of NEWS implementation (Oct.2019 – Dec.2019). Outcomes were compiled from hospital data analysts. Differences in activation triggers and patient disposition prior to and after medical emergency team (MET) activation were analyzed. Following NEWS implementation, we observed a 3.4% and 7.0% increase in respiratory/cardiac triggers for the MET (p-value 0.66 0.56, respectively) with a concomitant decrease in neurologic triggers. Subset analysis performed in a similar time-period, (Oct.2018–Dec.2018) we observed a 4.2% increase (p 0.27) in respiratory triggers. Interestingly, there was a decrease in cardiac triggers (-1.9%; p 0.31) with increase in neurologic triggers (2.1%, p 0.25). In-regards to patient disposition, pre-NEWS, 54% of RRT calls resulted in ICU transfers compared to 50% post-NEWS. Patients prior to NEWS implementation were NOT transferred to the ICU 4.5% more often than post-NEWS (p 0.51). Implementation of NEWS is of potential value for early recognition of sepsis. We illustrated a shift in activation triggers and changes in patient disposition post-NEWS-implementation. Although the data is promising, none of the metrics assessed met statistical significance supporting the need for further research on larger samples post-NEWS. Additionally, other outcome measures (patient outcomes and actual sepsis events) would ideally be captured in a prospectively fashion.

## IMPROVING CLINICAL RESEARCH FLOWSHEET COMPLETION RATES

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Paper flowsheets are commonly used in Phase 1 clinical trials as a guide for the research team to follow the complex schedule and time sensitive data collection of the day. The baseline measurement of flowsheet completion in the Termeer Center for Phase 1 clinical trials at Massachusetts General Hospital was 8%. A higher rate of flowsheet completion would result in fewer deviations, better executed protocols, less downstream work for members of the research team, and reflect the high-quality research done in the Termeer Center. The objectives were to increase rate of overall completion of flowsheets in

the Termeer Center by infusion nurses and Clinical Research Coordinators (CRCs) from 8% to 70%. To accomplish this goal, flowsheets were audited using the FDA data integrity ALCOA guidelines. ALCOA is an acronym which stands for Attributable, Legible, Contemporaneous, Original, and Accurate. Front line staff created a priority matrix of possible interventions to complete. Based on this information, utilization of brightly colored clipboards were implemented so flowsheets were easily locatable, a new “Incomplete” basket for end of day process was initiated, and an example of a “perfect flowsheet” to use as a reference tool was created. To enhance these efforts real time feedback was performed. Results of a recent FDA audit were shared with staff highlighting importance of flowsheets to the clinical research process. Performance Improvement Outcome: The rate of flowsheet completion improved from 8% to 72%. As flowsheets have evolved over time, they are now considered source documentation for clinical trials by sponsors and the FDA. When these flowsheets were first rolled out, they did not have that designation. By improving the completion rate for these flowsheets and understanding of the importance of completion, the infusion nurses and CRCs are now capturing and documenting the high quality of research that is being completed in the Termeer Center. This is important to not only the front-line staff, but also to sponsors who bring clinical trials to the center. Higher completion rates also reduce the frequency of requests for additional information when audits occur, a source of dissatisfaction for the infusion nurses. Future explorations in research could include the impact of flowsheets on patient experience, sponsor relations, team communication and more.

### **EARLIER IS BETTER! IMPROVING CARE COORDINATION, COMMUNICATION, AND SATISFACTION PRIOR TO SURGERY FOR LUNG CANCER PATIENTS**

**Charles Gregory McKenzie, BSN, RN, OCN®, BMTCN®, Richmond, VA**

Traditional navigation begins with a cancer diagnosis. With one-third of our navigated lung cancer patients having surgery as their primary treatment, first contact with a navigator may be post-op after positive pathological results. However, 20% of patients have been discharged by the time the navigator becomes aware, missing an important opportunity for patient contact. The purpose of this project was to develop changes to the contact points with the thoracic oncology patient from a post-op to a pre-op per-

spective. The ultimate goal was to improve patient communication and satisfaction with early identification of barriers to care. Through collaboration with the surgeon's office and the lung nodule coordinator, a plan was established to identify patients highly suspicious for cancer and connect with the patient prior to surgery in order to better navigate their needs. The navigator's points of contact with the thoracic oncology surgical patient were changed from initial hospital visit introduction, post-op follow-up phone call, and one-month follow-up phone call to a three-point contact approach before surgery. This included an introductory phone call, follow-up letter, and needs assessment with pre-education prior to surgery. Outcomes were measured through a chart review to evaluate the number of patient contact notes over three months, both pre- and post-intervention. The average patient contacts prior to the pre-surgical approach were three and post intervention were six, thus doubling the number of times the nurse navigator was able to connect with the patient. Patient satisfaction was reviewed for four months post-intervention with an 8% improvement since initiating the pre-surgery contact. Establishing patient trust through a post-surgical approach with less contact points makes it challenging for the navigator to identify and remove any barriers to care and effectively provide holistic care coordination. This new process eliminates the potential to miss initial patient contact due to delayed pathology reports. This approach also allows for the identification of anxiety during this pre-diagnosis period with the opportunity to discuss those fears. This process change improved the quality of life of the patients through better care coordination with earlier identification of barriers to care. Understanding current navigation workflow and potential barriers to care coordination and communication has led to improvements in patient communication and satisfaction in this patient population.

### **POST-FALL HUDDLE FOR ONCOLOGY PATIENTS: TARGETING REPEAT FALLS AS PART OF A FALLS PREVENTION BUNDLE**

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Approximately 700,000 to 1 million patients fall in hospitals yearly. A history of a fall is the greatest predictor of falls in oncology populations. In FY19, an oncology unit at an academic medical center had a fall rate of 5.12 and falls with injury rate of 0.84. Seventeen falls occurred among the same seven patients. A post-fall huddle as part of a fall prevention bundle is recommended as best practice. Studies have demonstrated decreased repeat falls and in falls with injury after implementing a post-fall huddle. The aim of this evidence-based project was to decrease repeat falls on an inpatient oncology unit with a post-fall huddle as a component of a multifaceted falls prevention bundle. Two nurses audited falls on an inpatient oncology unit in FY19. Following a literature review, a post-fall huddle form was developed in collaboration with Unit Council. The post-fall debrief was implemented at the beginning of FY20. Education in-services were provided at change-of-shift and reminders sent in monthly emails. Fall rates and repeat falls were re-assessed at the end of FY20. In FY20, the unit's fall rate was 3.11 with an injury rate of 0.54. Fourteen huddles were completed (48%). Prior to March 2020, the floor experienced 81% compliance with the huddle. Two patients had a total of four repeat falls. As with implementing any new practice, the post-fall huddle faced challenges and successes. The significant decrease in compliance by the end of the year may be associated with nurses working outside their native units and a reasonable shift in focus during a national crisis. Despite these challenges, all fall metrics decreased over FY20. These changes cannot be attributed to a single cause. The post-falls debrief was implemented as one component of a larger intervention bundle. A successful falls prevention intervention requires intensive multidisciplinary teamwork to target the multifaceted complex causes of falls. Sustainability is the ongoing goal of the post-fall huddle. Analysis of post-fall huddles suggests that successful implementation depends on shifting group culture to empower nurses to lead effective huddles. To encourage further acceptance of post-fall huddles in the unit culture, the huddle will be offered digitally. The bundle and post-fall huddle will continue to be implemented and studied through FY21.

## IDENTIFYING BARRIERS TO INPATIENT CHEMOTHERAPY ADMISSION TO INFUSION

## START TIME: A PROCESS IMPROVEMENT PROJECT AT STRAUB MEDICAL CENTER

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Delays in the initiation of inpatient chemotherapy for scheduled admissions can lead to shift hang times to the evening when there are decreased chemo credentialed resources, excess lengths of stays as well as decreased patient satisfaction. At Straub Medical Center inpatient unit, it was found that 100% of scheduled patients admitted for chemotherapy experienced a delay in infusion start times, approximately 3 hours. The intent of this project was to identify the barriers within the elective chemotherapy admission process that resulted in delayed start times and assess the interventions implemented for suggested process improvement. Baseline data was collected using a retrospective chart audit from all chemotherapy admissions occurring April 2018–December 2019 at Straub Medical Center Inpatient Oncology Unit. Initially we observed an overall mean of 7.0 hours from admission to chemo start time. We decided to look further at variables that may affect the flow between admission and start time. We discovered delays with beacon order release and identified a select group of clearance parameters prior to chemo administration. Additional data was obtained and a mean of 3.0 hours from admission to beacon order release and finally a mean of 4.2 hours from order release to chemo start time was discovered. These variables provided several areas for education and improvement. Pre-Admission Process Implemented calls to patient day before to confirm admission and arrival time. These calls are done by an oncology nurse with chart review prior to call reviewing that pre-clearance labs were completed, provider clearance documented and patient is aware of plan and admission duration. Implementation of workflow education with nursing and pharmacy staff during rounds (Review and release of orders within 2 hours of patient arrival). Data to be collected every 4 weeks for intervention assessment. Time from admission to chemo start time (comparing to baseline data): All patients: 6.3 hours (7.0 hrs) and Select group: 8.0 hours (7.2 hrs). Time from beacon order release to chemo start time: All patients: 3.3 hours (4.2 hrs) and Select group: 4.8 hours (4.4 hrs). Time from admission to beacon order release: All patients: 2.9 hours (3.0 hrs) and Select Group: 3.3 hours (2.8 hrs). We continue to collect quarterly data, second quarter next due in September and plan for a third quarter as well.

## INCREASING ONCOLOGY NURSES' ADHERENCE TO PERSONAL PROTECTIVE EQUIPMENT USE WHILE HANDLING HAZARDOUS DRUGS

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One of the mainstays of cancer treatment includes hazardous drugs (HDs), many of which oncology nurses handle. Exposure to HDs is associated with adverse effects; no safe exposure level is known. Consequently, safe handling guidelines, including the use of personal protective equipment (PPE), have been published and updated continually. PPE should be consistently utilized to minimize exposure, though current literature demonstrates low and inconsistent use. The purpose of this project was to evaluate the impact of an audit and feedback intervention on oncology nurses' adherence to PPE use while handling HDs. In addition, the effect on workplace safety climate was explored. This project utilized a one-group pre- and post-intervention design with participants (N = 24) serving as their own comparison. The intervention was immediate verbal feedback and reinforcement of safe handling policies to nurses after observing their handling of HDs during administration or disposal. The Revised Hazardous Drug Handling Questionnaire and Workplace Safety Climate Questionnaire were utilized pre and post-intervention to measure nurses' self-reported PPE use and perceived workplace safety, respectively. There was a statistically significant increase in self-reported PPE use during HD administration and disposal ( $p = .004$  and  $p = .008$ ; respectively), as well as improved observed adherence rates from week one (28%) to week four (76%). Workplace safety climate scores remained high both pre (90.70) and post-intervention (93.80), without a statistically significant difference detected ( $p = .05$ ). Failure to utilize recommended PPE while handling HDs jeopardizes the safety of nurses and places patients, caregivers and other staff members at risk of exposure. In order to promote workplace safety, organizations must emphasize the importance of using PPE and implement interventions to improve adherence. HD safe handling precautions need to remain an important part of the organization's policies and procedures, as well as education and training. Nurses and organizational lead-

ership must monitor and correct non-adherent PPE use and must be committed to promoting change in safe handling practices. Utilization of the audit and feedback intervention allowed for observation of current practices and provided the ability to deliver immediate education and reinforcement of safe handling recommendations and guidelines. This project adds to the limited body of knowledge regarding interventions to improve PPE use while handling HDs.

## THE VALUE OF INCLUSION: SEXUAL ORIENTATION/GENDER IDENTITY IN THE CARE OF THE LGBTQ+ PATIENT WITH CANCER

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There are an estimated 13 million Americans who are part of the LGBTQ+ community which translates to approximately 4.8% of the population. This number is likely higher as sexual orientation and gender identity questions are not routinely part of surveys or health questionnaires. Health disparities refer to a higher burden of illness, injury, disability, or mortality experienced by one group relative to another. LGBT patients are statistically more likely to have a higher rate of unemployment, food insecurity, lower incomes, and be underinsured than non-LGBT counterparts. LGBT patients have higher rates of alcohol and tobacco use, obesity and may be more at risk for certain types of cancer. Psychosocial issues, access to appropriate care, fear and lack of trust in the health-care system may lead to avoidance of routine screenings, delays in care, and follow up. The purpose of our project was to educate our patient facing caregivers in the importance of addressing the sexual orientation and gender identity of patients, increase the comfort level in addressing the concerns of LGBT patients, and improve the collection of sexual orientation/gender identity (SOGI) information in the history section of our electronic health record. We provided a variety of educational in-services to our physicians, APPs, social workers, and RN care coordinators and outlined the expectation to utilize a history section within our electronic health record (EHR) to capture SOGI data. A survey was deployed after the sessions to determine the perceptions of participants' preparedness and comfort level pre and post education in addressing

and having conversations regarding SOGI. The results showed a perceived increase in knowledge base and comfort level in addressing LGBT patient needs. A monthly reports extracts information from the EHR to help us gauge improvement in the utilization of the SOGI history fields and we are seeing an increase in utilization each month. We find the collection of this data and the education in this patient population to be an important part of our ability to provide high quality, inclusive care. As we build trust with our patients and get to know them on a holistic level, we can better serve them from prevention, detection and screening, through treatment and survivorship.

### THE SILENT TREATMENT: INTERVENTIONS TO CREATE AN ENVIRONMENT OF QUIET AND HEALING

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Hospitals are a place where patients come for treatment and care. They are also a bustling place with many on-goings which can unfortunately create a disruptive environment. Having a “quiet environment” in the hospital is associated with better outcomes and shorter lengths of stay. On 10 South, a 20-bed inpatient adult hematology/oncology unit on the upper east side of New York City, for calendar year (CY) 2019 only 40.4% of Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys indicated that the “room and environment” were “always quiet.” This represented a 8.8% reduction from CY 2018 and an 11.6% shortfall from the 2019 benchmark. “Noise” and “unnecessary interruptions” are frequently mentioned on Press Ganey surveys as negative aspects of the patient experience on 10 South. Based on a survey of the scholarly literature and a visual audit of the practices in place pertaining to noise reduction, a quality improvement project was initiated. The purpose of the quality improvement project was to reduce both ambient noise on the unit, as well as to improve patients’ perception of that noise, as measured by HCAHPS data on the quietness item. A “quiet time bundle” was implemented consisting of closing doors during quiet hours, plugging headphones into TV remotes, and addressing quietness expectations during patient education each shift. 13 HCAHPS surveys returned between February and August 2020 showed an overall 15.9% increase in HCAHPS quietness scores compared to CY 2019 (40.4%). Implementation of the “quiet time bundle” appeared to have a

significant and positive effect on HCAHPS scores on the quietness item. Oncology nurses are in a unique position to positively impact their patients’ outcomes by providing a quiet environment during their lengthy admissions. Data is limited because of a two month interruption in data collection due to the coronavirus pandemic. Future steps include re-implementing the “quiet time bundle” after the coronavirus pandemic is over, recruiting more “quiet time champions” to help increase compliance, and assembling a larger, more representative sample of HCAHPS data.

### POSITIVE IMPACTS OF INCREASING UTILIZATION OF RAPID RITUXAN IN THE INPATIENT SETTING

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Nurses on an inpatient oncology unit at a large academic medical center identified that rapid Rituxan was under-utilized compared to standard infusion. In one month, 20 inpatients received Rituxan; 1 received rapid infusion (5%), 3 were not eligible (15%), and 16 received standard infusion (80%). Barriers to rapid Rituxan utilization included physician awareness of the order set and nurse knowledge. 42.9% of nurses reported feeling uncomfortable with administering rapid Rituxan and only 14.3% could identify eligibility criteria. The goal of this project was to increase the utilization of rapid Rituxan compared to standard infusion, thereby decreasing nursing workload. The project aimed to increase nursing knowledge and comfort on rapid Rituxan administration. Emails to ordering providers introduced the project, defined patient eligibility criteria, and provided instructions on correct order selection. Providers were also emailed before patient admissions to prompt consideration of rapid Rituxan. Teaching materials were developed and staff received education on rapid Rituxan infusion guidelines. After one month, there was a 34% increase in usage of the rapid Rituxan. Seven out of 18 patients received rapid infusion, thereby reducing infusion time and nursing workload. Staff received pre- and post-assessments regarding knowledge and skill level. After education, there was an increase of 35% of nurses that reported they were “mostly comfortable” or “definitely comfortable” with administering rapid Rituxan. Knowledge of eligibility criteria among staff increased to 67% post-education. Rapid Rituxan involves only one set of vital signs and a two-nurse

rate change, compared to three of each in standard infusion. Standard infusion time ranges from 2–4 hours versus rapid infusion is 90 minutes. Future steps will be to evaluate other methods to reduce infusion time through Rituxan Hycela and the implementation of a “Hypersensitivity Reaction Flowsheet” to better identify patients eligible for rapid infusion. The use of electronic medical record reminders for the appropriate treatment is also a consideration to prompt providers to order rapid Rituxan. Increasing the ordering of rapid Rituxan can lead to reduced infusion and hospitalization time which can cause positive financial impacts for hospitals and patients. Rapid Rituxan administration guidelines were developed and vetted to provide standardized guidelines for administration based on manufacturing information. Education assisted providers and nurses in identifying patient eligibility.

#### **“INCREASING THE EFFICIENCY OF PATHOLOGY SLIDE COLLECTION FOR SECOND OPINION CONSULTS IN THE OUTPATIENT ONCOLOGY SETTING: RESULTS OF A NURSE-LED, QUALITY IMPROVEMENT PROJECT”**

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Historically, the process of coordinating the delivery of pathology slides needed to confirm a patient’s cancer diagnosis has been a complicated, but critical, step needed to ensure patients can start treatment without delay. This is particularly true for patients that need a second opinion, where variations in workflow can delay treatment initiation. The purpose of this project was to describe results of nurse-led quality improvement project designed to standardize the collection and delivery of pathology slides for patients requiring a second opinion in the ambulatory oncology setting to reduce time from diagnosis to initiation of treatment. The Plan-Do-Check-Act (PDCA) methodology was used for the project. Following an initial analysis of program performance, nursing leaders and staff from Intake, Pathology, and Disease Management developed a plan to standardize workflow. Modifications included: 1) initiating slide collection as soon as pathology reports were available in patient’s EMR, 2) using pre-paid shipping labels improve slide delivery times from outside facilities, 3) using both internal

and 4) external couriers to expedite slide delivery, and 5) and revising the workflow used to communicate slide readiness to clinical staff within 48 hours. Modifications were implemented in October of 2019 and evaluated by tracking the number of pathology slides needed for a second opinion successfully delivered each month over a 12-month period. During the first 12 months of the program (Aug. 2019 to Aug 2020), Intake staff coordinated the delivery of 2,673 pathology slides needed for second opinions. Prior to implementation of the new workflow (Aug/Sept, 2019), peak monthly output was 135 slides, which was only 5.1% of the annual volume for this slide type. However, following implementation of the new workflow (Oct 2019), monthly output began to climb, more than doubling by March of 2020. Continued review of the data over the year found that following a small drop in output in Mar/Apr 2020 due to COVID-19, monthly output of pathology slides continued to increase, reaching its highest point for the year in August, 2020 (12.4%). Results of the project underscore the importance of oncology nurse-driven quality improvement projects focusing on barriers to treatment initiation. Research evaluating the impact of the increase in second opinion pathology slide delivery on both programmatic and patient outcomes is being planned now.

#### **USING MOCK-CODES TO IMPROVE ROLE CLARITY AND CONFIDENCE IN THE ADULT AMBULATORY ONCOLOGY SETTING: A NURSE-LED, QUALITY IMPROVEMENT PROJECT**

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In the outpatient oncology setting, code teams respond must respond to high-priority situations, and quickly take action. However, lack of clarity from staff about roles and confidence performing these roles can sometimes lead to confusion during codes, impacting outcomes. Research has shown that both mock codes and post-code debriefings can be effective for improving code response, raising questions whether this could be an effective strategy for improving role clarity and confidence in our code response teams. The

purpose of this project was to evaluate the effectiveness of combined mock-code training and nurse-led debriefing for increasing role clarity and confidence of oncology staff in three key areas – 1) clarity about role in codes, (2) confidence performing specified role, and (3) confidence initiating CPR/BLS during codes in the ambulatory oncology setting. Code response training consisted of participation in at one of five, mock codes delivered by Nursing House Supervisors (NHS) to code response staff including advanced practice providers (APPs), registered nurses (RNs), medical assistants (Mas), security personnel, transports staff and leaders. Each mock code was followed by short, nurse-led debriefing designed to emphasize areas for improvement and key messages. Mock code training was delivered over a two-month period. Self-reported improvement in the outcomes of interest were evaluated before and after the intervention using responses to several yes/no and Likert-style questions delivered via an electronic survey. A total of 107 staff participated in the mock codes between March 14, 2020 and April 4, 2020 and complete pre- and post-intervention questionnaires. Results revealed a 12% increase in staff that answered “yes” to the question “Was your code response role communicated to at the beginning of the shift?”, and a 14.8% increase staff reporting being ‘very confident’ performing expected role in codes after combined mock-code/debriefing intervention. The percentage of staff that reporting being ‘very confident’ initiating BLS/CPR varied by group, with small decreases in confidence in APPs, Leaders, and security personnel, and increases in confidence in MA, RNs. Results support the usefulness of mock code training and nurse-led debriefing to improve staff clarity and confidence performing expected roles during codes, but suggest other interventions may be needed to improve staff confidence initiating CPR/BLS.

### **IMPLEMENTATION OF A CURBSIDE PROCESS IN RURAL ONCOLOGY CLINICS TO DECREASE RISK OF COVID-19 EXPOSURE FOR IMMUNOCOMPROMISED PATIENTS**

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In the spring of 2020 with the novel COVID-19 virus, care of the immunosuppressed patient became increasingly difficult to continue in the traditional man-

ner. As the pandemic progressed, oncology nurses at two small rural oncology clinics noticed patients began avoiding needed appointments due to fear of exposure. The nursing teams envisioned a solution that could safely meet the needs of their patients. They quickly developed a curbside injection process for patients to receive needed non-oncologic injections. The process quickly expanded to include CADD pump removals and asymptomatic COVID-19 screening. Once the performance improvement project was approved by providers, leadership, infection prevention and regulatory representatives, the vision became a reality through the work of dedicated oncology nurses. The purpose of the project was to decrease the risk of exposure to COVID-19 for immunosuppressed patients while providing needed supportive injections, CADD pump removals with port de-access and asymptomatic COVID-19 screenings. A trial was done to determine feasibility of the operation. Testing included location of the project outside of the clinic doors, equipment accessibility, infection control measures and patient safety components such as identification and medication scanning. Opportunities were identified and structured plans were implemented. The teams obtained a mobile cart with computer and supplies that could be used for the curbside process. The cart was weatherproof, provided teammates with access to the electronic medical record, and allowed for protection of patient health information. Upon arrival, patients called the registration staff, parked under the awning just outside of the clinic doors, which provides protection from the weather, then a nurse provided the needed procedure curbside. Feedback from patients and teammates aided in identifying further improvements. Since 3-23-2020, the clinics have performed over 1,000 curbside procedures. Evaluation includes the ongoing monitoring of patient satisfaction scores and patient comments, which have all been very positive. Comments from patients include ease of access to their care, and decreased fear of exposure. Available infusion chair space had decreased significantly to maintain social distancing in the infusion room. With the new capacity provided by the curbside visits, the teams were able to maintain steady infusion patient volumes. While other centers may have implemented curbside processes in metropolitan areas, this may be innovative in that it is being done in small regional settings.

### **ONCOLOGY ELECTROLYTE REPLACEMENT PROTOCOL: A TOOL TO IMPROVE THE MANAGEMENT OF MAGNESIUM AND**

## POTASSIUM FOR CANCER PATIENTS IN THE OUTPATIENT SETTING

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An outpatient cancer center has a total 11.5% of oncology patients receiving intravenous (IV) magnesium and/or potassium replacement to address electrolyte deficiency, clinical condition (e.g. vomiting, diarrhea), or part of a treatment protocol (i.e. platinum-based regimen). However, 60.6% of all IV magnesium and potassium replacements were given to asymptomatic patients on non-platinum-based regimens. In these asymptomatic patients, there is a poor correlation between laboratory level of magnesium and/or potassium and ordered IV doses. Prescribing provider interviews and a nursing staff electronic survey suggest that valuable time is wasted for nurses, providers, and patients on procurement of orders and administration of magnesium and potassium replacements. The purpose of this quality improvement project is to decrease the number of IV replacement infusions of magnesium and potassium among asymptomatic oncology patients receiving non-platinum-based regimens by developing and implementing a multidisciplinary therapy plan for electrolyte management. Inconsistent practices and increased IV infusion time leads to patient dissatisfaction and ineffective management of magnesium and potassium deficiencies. The therapy plan is a multidisciplinary approach including patient dietary education from nursing staff, nutritional consultations, and a provider order set for parameters of oral and/or IV replacement of magnesium and potassium. Preliminary results indicate that overall IV electrolyte replacements rates decreased from 11.5% to 9.4%. IV replacements of magnesium and potassium given to asymptomatic patients receiving non-platinum-based regimens decreased from 60.5% to 57.8%. Further analysis will determine if the correlation has improved between laboratory level of magnesium and/or potassium and ordered IV doses. The implementation of a multidisciplinary therapy plan can decrease the overall need for magnesium and potassium IV replacements for oncology patients in an outpatient cancer center. Analysis will determine if magnesium and potassium IV replacement orders became more consistent with laboratory levels. As outpatient cancer centers experience a larger volume of patients being treated, infusion chair time is less available for patients to receive their intravenous (IV) treatments. A multidisciplinary approach to the management of magnesium and potassium can decrease the overall need for IV replacements. Decreasing elec-

trolyte replacement infusions may offer cancer centers an opportunity to improve utilization of limited infusion space and time.

## DEVELOPMENT OF A NURSE-LED STRATEGY FOR INCREASING 3-DAY, PRE-VISIT READINESS RATES IN INTAKE DEPARTMENT: A NURSE-LED, QUALITY IMPROVEMENT PROJECT

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For patients facing a new cancer diagnosis, ensuring that all the member of the care team have the required imaging, labs, history, and other information needed to start treatment can be a dizzying process. To help reduce burden on patients and minimize delays in treatment, in 2017, Miami Cancer Institute (MCI) launched a nurse-led Intake Dept. designed to collect, organize and deliver this information to providers. While successful, review of 2019 program data revealed that the percentage of patients who had all their required imaging, labs, medical history, etc ready three or more days before their appointment was only 14.0%. The purpose of this project was to describe results of a nurse-led intervention designed to increase  $\geq 3$ -day readiness rates in an outpatient Intake dept. Results of a root cause analysis (RCA) revealed that a primary reason for the delays in  $\geq 3$ -day completion was the high-volume of last-minute add-ons, which was preventing Intake nurses from completing their goals. Using the Plan-Do-Check-Act (PDCA) methodology, Intake staff in met to discuss the problem and develop solutions. During the Plan phase, the idea of developing a triage team to allow Intake nurses to complete cases without interruption was identified. The Intake team was divided into three subgroups: Team A (who complete intakes for patients scheduled within 1-3 days), Team B ( $>5$  days from visit), and the newly-formed Team C, specifically-designed to target patients in the  $\geq 3$  day window. Prior and during implementation of the new triage team (Aug-Nov 2019), average monthly  $\geq 3$ -day readiness rate was 21.7%, with little change month to month. Following implementation of the new team, however,  $\geq 3$ -day readiness rates rose significantly, reaching 84.2% in January of 2020. Continued review of readiness rates in the months that followed showed that  $\geq$

3-day rates remained high, reaching 90.1% in May of 2020. Results provide evidence that development of specialized triage teams in the Intake setting can significantly increase the number of patients who have all the necessary information needed to start cancer treatment within 3-days. Research evaluating whether increases in  $\geq 3$ -day readiness rates are associated with improved patient and provider outcomes is underway now.

### MEASUREMENT OF ORTHOSTATIC VITAL SIGNS REDUCES FALLS IN THE HEMATOPOIETIC STEM CELL TRANSPLANT POPULATION OF A HEMATOLOGY/ONCOLOGY UNIT

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Having a cancer diagnosis increases the risk for falls, a frequently reported adverse event among adults in the hospital. Falls are known to increase patient morbidity and mortality and increase financial costs to the institution. Hematopoietic stem cell transplant (HSCT) patients are prone to falls with injury due to multiple risk factors (thrombocytopenia, deconditioning, poly-pharmacy, neuropathy, muscle atrophy, and bone loss and cognitive changes). These patients are also at greater risk for experiencing orthostatic hypotension related to fluid loss caused by vomiting, diarrhea, diaphoresis, and bleeding. Despite the use of a fall assessment tool the fall rates on the Hematology/Oncology unit were high. The unit had averaged 24.6 total falls in the years 2017, 2018 and 2019. The purpose of this project was to determine if the routine assessment of orthostatic vital signs (VS) would improve the ability to identify hematology/oncology patients at greater risk for falling and ultimately decrease falls on a 28 bed HSCT in-patient unit in an academic medical center. After completion of a literature review and fall data for the previous two years, key stakeholders were identified and findings reviewed. Unit leadership partnered with unit staff to evaluate knowledge and practice gaps related to the causes and symptoms of orthostatic hypotension, the performance of orthostatic VS, and documentation standards for orthostatic VS. Based upon the needs assessment, educational sessions were performed by the unit educator. A 1-month pilot was performed wherein daily orthostatic VS were measured on all patients on the unit. Chart audits were conducted

to evaluate compliance with the intervention and to identify a specific patient population, if any, who experienced postural VS changes. Patients admitted for or with a recent history of autologous or allogeneic HSCT were identified as the group with the most occurrences of orthostatic VS. We next implemented daily postural VS on all HSCT patients. Post-implementation of daily orthostatic VS done on all HSCT inpatients on the unit resulted in a 57% reduction on overall patient falls and a 63.7% falls reduction of the HSCT patients. This improvement has been sustained for one year. The use of orthostatic vital signs assessment, despite symptomology, to supplement the Hester Davis fall risk tool has proven useful in identifying that HSCT patients are at high risk for falls.

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## RESEARCH

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### MUSLIM CANCER SURVIVORS' EXPERIENCE IN THE UNITED STATES: A QUALITATIVE APPROACH

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The purpose of this project was to gain an understanding of the cancer diagnosis, treatment, and survivorship experiences of adult Muslim cancer survivors residing in the US. Muslims represent a large, rapidly growing segment of the population in many Western countries including the US. Because of their religious beliefs and cultural values, Muslim cancer survivors may have distinct and unrecognized health care needs and outcomes. Despite progress in understanding the effects of cancer on survivors' lives, very limited research has focused on the cancer experience and potentially unique psychosocial, physical, and spiritual needs of Muslim cancer survivors residing in the US. Lack of understanding of the Muslim cancer survivors' experience may affect the patient-provider relationship and consequently negatively impact health care outcomes and patient satisfaction. An interpretive, descriptive qualitative approach was used to gain an understanding of the experience of Muslim cancer survivors from their perspective and within the context of their culture. A purposive sample of 17 male and 15 female Muslim cancer survivors was recruited

from across the US. Data on Muslim cancer survivors' experience were collected through individual in-depth, semi-structured interviews. Inductive thematic analysis was used to identify themes related to Muslim cancer survivors' experience. Six broad themes were identified to gain an understanding of the cancer experiences of adult Muslim cancer survivors residing in the US: (1) cancer experience based on their belief in God, (2) hiding cancer diagnosis, (3) perceived strong social support (4) making the effort to keep up with religious practices, (5) perceived discrimination in healthcare settings, and (6) importance of religion and cultural awareness. This study provided key information concerning the unique experience of Muslim cancer survivors residing in the US. Identifying, understanding, and meeting survivors' religious needs as well as understanding their cancer experience may reduce cancer health disparities and enhance health outcomes. Our future research plans are to determine the influence of religious and culturally sensitive social support groups on Muslim cancer survivors on health and social support outcomes.

### **DEPRESSIVE SYMPTOMS AND PREDICTORS IN WOMEN WITH GYNECOLOGIC CANCER: A LONGITUDINAL ASSESSMENT**

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Women with gynecologic cancers suffer from a high level depressive symptoms in cross sectional studies. However, little is known about the trajectory and predictors of depressive symptoms in this cancer population. Thus, the purpose of this study was to explore the prevalence, course, and predictors of depressive symptoms in gynecologic cancer patients over time. In this secondary data analysis, self-reported depressive symptoms were measured using the Patient Health Questionnaire (PHQ-9) at three time points: pre-treatment (To), six weeks (T1) and six months (T2) after treatment. Mixed effect modeling was performed to investigate changes in depressive symptoms over time and to evaluate the clinical and demographic predictors of depressive symptoms. The validated cut-off score of depressive symptoms was PHQ  $\geq 10$  at each time point. The analysis included 74

cancer patients at To which were followed up with 44 patients at T1 and 32 patients at T2. The mean age of the participants was 59.5 years and 87% were White, 64% had cervical cancer and 57% had BMI  $> 30$ . The proportions of patients with depressive symptoms above the cut-off of PHQ  $\geq 10$  was 24% before treatment, 20% at 6 weeks and 15% at 6 months after treatment. According to the results of the unconditional linear growth model, the mean scores of depressive symptoms were 5.99, 5.46 and 4.93 across three time points. Higher BMI and cervical cancer (vs endometrial cancer) predicted higher depressive symptoms in cancer patients. There was no association of symptoms and age or race. Just under a quarter of patients start with depressive symptoms at base. The symptoms reduced slightly from pre-treatment to 6 months to about 15% mostly without medication or therapy after treatment in women with gynecologic cancer. Consistent with the literature, depression has its highest level around the time of cancer diagnosis. Moreover, obesity is a predictor of depressive symptoms. Improving the weight management in cancer patients may reduce depressive symptoms which warrants further studies.

### **TAILORED HOME-BASED EXERCISE AMONG CANCER SURVIVORS: AN OPEN-LABEL FEASIBILITY STUDY**

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Physical activity has well-known positive effects on individuals managing chronic illnesses and various symptoms. A home exercise showed benefits among individuals with chronic conditions, however, the feasibility of tailored home exercise to the participants' physical condition is not well understood. The study aims to examine the feasibility and acceptability of the Tailored Home-Based Exercise (iBHE) program among low-income cancer survivors living with co-morbid conditions. This is an open-label one group pre-post study. Low-income participants diagnosed with solid tumor cancer who have completed cancer treatment at least 6 months and diagnosed with diabetes and/or hypertension were recruited. Participants were asked to participate in 4 home visits for the exercise, wear the FitBit respond to the phone

application daily for four weeks. Questionnaires were used to measure participants' well-being, symptoms, and resilience at week 1 (before the program) and week 4 (at the program completion). Nine participants' age range from 56-78 years old were enrolled in this open trial. They were diagnosed with breast, prostate, and uterine cancer. Two participants (22% attrition) were unable to complete the 4-week program. The weekly activity goals were achieved (66-100%). The quantitative analysis showed an increase in weekly average step count (9-113% increase from baseline), two participants' step count decrease (1-17% reduction from baseline). After the program, participants' well-being measured by SF-36 showed improvement of physical function (21%), the role of physical (29%), social function (19%), vitality (24%), and general health (10%) at the completion. Participants reported reducing bodily pain at the completion compare to the baseline. Qualitative data suggested a longer duration of intervention and less number of home visits. The study result supported the feasibility of the tailored home-based exercise program using mobile technology and a wearable device. Although small sample size, we found a promising impact of the program on outcomes including, improvement of the physical activity and symptoms. This exercise program integrates the personalized program and mobile technology to promote physical activity and monitor the cancer-related symptoms. It provides an alternative program for cancer care improvement. The study supports the feasibility of the program in a unique low socioeconomic status cancer patients.

### **CORRELATES OF HEALTH-RELATED QUALITY OF LIFE IN A NATIONAL SAMPLE OF OLDER ADULT SURVIVORS OF COLORECTAL CANCER**

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Older adults account for 64% of all cancer survivors in the United States and are at high risk to experience adverse effects and decreased health-related quality of life (HRQOL) related to cancer and its treatments. The purpose of this study was to gain a better understanding of HRQOL and its correlates in a national sample of older adult survivors of colorectal cancer. This secondary analysis utilized the linked Surveillance Epidemiology and End Results-Medicare Health Outcomes Survey (SEER-MHOS) dataset (N=20,738) for available cohorts 1 to 15 (1998-2014). Hierarchical multiple regression analysis was calculated to

analyze the contribution of characteristics of the individual and environment (i.e., age, gender, race, marital status, education, income, and geographic location), biological function (i.e., cancer stage, current cancer treatment, time since diagnosis, and comorbidities), symptoms (i.e., pain, depression, and fatigue), functional status, and general health perception on HRQOL as measured by the mental and physical composite scores on the RAND SF-36. In the final model, depression ( $\beta=0.37$ ,  $SE=0.21$ ,  $p<0.001$ ), fatigue ( $\beta=0.50$ ,  $SE=0.01$ ,  $p<0.0001$ ) and functional status ( $\beta=-0.23$ ,  $SE=0.01$ ,  $p<0.001$ ) significantly predicted mental HRQOL ( $R^2=0.55$ ). For physical HRQOL, pain ( $\beta=0.34$ ,  $SE=0.003$ ,  $p<0.001$ ), depression ( $\beta=-0.13$ ,  $SE=0.11$ ,  $p<0.001$ ), functional status ( $\beta=0.58$ ,  $SE=0.004$ ,  $p<0.001$ ) and general health perception ( $\beta=-0.20$ ,  $SE=0.05$ ,  $p<0.0001$ ) were significant predictors ( $R^2=0.89$ ). Symptoms (pain, depression, and fatigue) were the largest contributors to mental and physical composite scores, accounting for 43% and 61% of the variance in mental and physical HRQOL, respectively. This study provides a greater understanding of the correlates of HRQOL among older adult survivors of colorectal cancer. Given the notable impact of symptoms on mental and physical HRQOL, ensuring adequate symptom management is key to improving the HRQOL of older adult survivors of colorectal cancer.

### **ONCOLOGY NURSES' PROFESSIONAL QUALITY OF LIFE: AN ANALYSIS OF DEFINING AND MEASURING PROFESSIONAL QOL**

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Addressing professional quality of life (QOL), including concepts related to compassion fatigue, is an important step in improving patient outcomes, retention of oncology nurses, and oncology nurses' well-being. The purpose of this mixed methods study was to explore how oncology nurses experience professional QOL and compare their experiences to the existing tool most commonly used to measure professional QOL, the Professional QOL (ProQOL) Scale. This study addressed gaps in defining and measuring oncology nurses' professional QOL as illustrated by conflicting and inconsistent findings regarding professional QOL when measured with the ProQOL Scale and lack of an inductively derived theoretical perspective of oncology nurses' professional QOL. Purposive sampling was used to recruit oncology nurses.

Interviews and surveys were conducted with 14 participants from 13 departments in ten health systems across six states. Strauss and Corbin's grounded theory methodology guided qualitative data analysis. Participants rated their own professional QOL on a scale of 1–10 and completed the ProQOL. Descriptive statistics of the ProQOL results were analyzed and compared to the qualitative results and self-ratings. Reconciling Incongruencies was the core concept for the Theory of Oncology Nurses' Professional QOL. Four categories include Accepting the context of oncology nursing, Pursuing a calling, Being valued, and Bettering the world. Some of the items from the ProQOL survey aligned with these categories. However, 26.7% of the ProQOL items were not related to categories that emerged from the qualitative data. Further, eight of the 13 sub-categories that emerged from this study are not addressed with the ProQOL. All participants except for one significantly rated and described their professional QOL lower than was indicated by their ProQOL scores. The study findings provide a theoretical framework to understanding professional QOL for oncology nurses, identify barriers in current professional QOL measurement, and provide the foundation for scale development. This study is innovative because it presents an opportunity, grounded in the experiences of oncology nurses, to address limitations that exist with the current method of measuring professional QOL in oncology nurses.

### PHYSICAL ACTIVITY GOALS FOR YOUNG ADULTS DURING CHEMOTHERAPY

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Despite decades of research, fatigue remains a distressing and under-managed symptom in adolescents and young adults (AYAs) with cancer. Although physical activity interventions are recommended to relieve fatigue, many AYAs become less physically active during chemotherapy. There is minimal evidence about physical activity or the efficacy of interventions to increase physical activity specifically for AYAs during chemotherapy. A recently completed randomized clinical trial examined a 3-month physical activity intervention to improve the self-management of fatigue in young adults receiving chemotherapy. This report provides data for 23 AYAs (20–39 years old) enrolled in the trial who used a physical activity tracker (Fitbit) to set goals (steps/day). Setting goals and monitoring progress toward goals are self-regulation

skills that are important in the self-management process to improve outcomes. Fitbit data, activities AYAs engaged in to meet their goals, and barriers and facilitators to physical activity were recorded. Data were summarized, inspected for patterns, and categorized into themes. These AYAs (78% female, mean age = 32.0 years) were in the early months of chemotherapy for diagnoses that included breast cancer (9), lymphoma (6), sarcoma (3), colon cancer (2) and other cancers. Most were partnered (82.6%), and most were parents (60.9%). They set physical activity goals that ranged from 1,000 steps/day to 10,000 steps per day. During the months of the study, many AYAs increased and met their physical activity goals, although the number of steps/day fluctuated. They also participated in other physical activities, including running, rowing, and biking. Having young children, pets, and a supportive social network facilitated their ability to meet physical activity goals. Symptoms and treatment complications were barriers to meeting goals. Engaging in physical activity during chemotherapy is challenging but is recommended to relieve cancer-related fatigue. Tailored support can help AYAs learn self-regulation skills to set goals to maintain or increase their physical activity, even for those with low levels of physical activity. Nurses are instrumental to promote physical activity as an evidence-based self-management intervention for AYAs with cancer, beginning early in treatment.

### LONELINESS PERCEPTION AMONG CHILDHOOD CANCER SURVIVORS (CCS)

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Loneliness is a subjective state that is unpleasant and distressing. Despite the advances in therapies and supportive care for childhood cancer survivors (CCSs), the potential adverse effects of loneliness on psychological and physical health is an understudied phenomenon in CCSs. The purpose of the current study is to estimate the prevalence of loneliness and examine predictors of loneliness in CCSs. The study is guided by Adjustment to Chronic Illness Model. This study is a secondary data analysis of a de-identified dataset obtained from a cancer center in the South West (n=233). Criteria for enrolling participants were having history of cancer, diagnosed before 22 years of age, in remission, and have been > 2 years post therapy. Descriptive statistics and frequencies were calcu-

lated for all variables. We used multivariable logistic regression modeling to identify predictors of loneliness in CCSs. Odd ratios and corresponding 95% confidence interval were calculated. 21.5% (n=50) of survivors reported loneliness. The logistic regression of treatment model was statistically significant,  $\chi^2(9) = 27.297$ ,  $p=0.001$ , the model explained 17.1% (NagelkerkeR<sup>2</sup>) of the variance in loneliness. Of the six predictor variables included in the model, three were statistically significant. Non-white survivors were 72% less to report loneliness (OR= 0.283, 95% CI 0.09–0.81). Survivors whose parents were married / living together were 2 times more likely to report loneliness (OR= 2.042, 95% CI 1.01–4.14). Survivors treated with cranial radiation were 5 times more likely to report loneliness (OR= 4.992, 95% CI 1.78–14.2). A subset of CCSs experience loneliness during survivorship years. Detecting and alleviating symptoms of loneliness in CCSs may help transition into society, achieve their expected social roles, and reduce psychological and physical morbidities associated with loneliness.

#### **CORRELATION BETWEEN COMPETENCE FOR HOMECARE AND SYMPTOM FREQUENCY, SEVERITY, AND DISTRESS IN ADULTS UNDERGOING CHEMOTHERAPY**

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Competence for homecare (CHC) is the ability and preparation of a person with a chronic illness to self-care at home. Symptoms caused by cancer and its treatment impact the patients' ability to self-care. Considering that CHC is a fundamental ability to engage in care plans after hospital discharge, in this preliminary analysis, we examine the correlation between CHC and symptom frequency, severity, and distress (FSD) in adults diagnosed with cancer undergoing chemotherapy. We conducted a non-experimental, correlational, cross-sectional study. People with cancer were recruited through convenience in an oncological center in Bogota, Colombia, after approval by the Review board. CHC was measured with the "cuidar" instrument short version and symptoms were measured with the Memorial Symptom Assessment Scale Short Form—both validated for the Colombian context. For data analysis, we conducted descriptive statistics and a two-tailed, Spearman correlation with an alpha level of  $p<0.05$ . 137 cancer patients agreed to participate. The mean age of the participants was 51 years old (SD 12), the majority were women (76.6%), diagnosed with breast cancer

(39.4%), had a high school degree (45.2%), and were in low socioeconomic level (61.2%). High CHC was reported in 77.3% of participants. The most occurring (76.6%) and frequent (34.2%) symptom was lack of energy, but the most intense (32.0%) and distressing (28.3%) was "I don't look like myself". Competence for homecare was negatively strongly ( $p<0.001$ ) correlated with frequency ( $r = -0.313$ ;  $r = -0.361$ ), intensity ( $r = -0.314$ ;  $r = -0.380$ ), and distress ( $r = -0.361$ ;  $r = -0.385$ ) of lack of energy and urinary problems; intensity ( $r = -0.382$ ) and distress ( $r = -0.311$ ) of "I don't look like myself"; and frequency ( $r = -0.243$ ) of difficulty sleeping. The results show that lower CHC in cancer adults undergoing chemotherapy could lead to higher FSD of lack of energy and urinary problems; higher intensity and distress of self-image problems; and most frequent difficulty sleeping. It is necessary to develop nursing strategies that improve the patient's CHC in order to reduce the FSD of cancer symptoms. Strategies addressing the lack of energy must be prioritized.

#### **HOW OLDER CANCER SURVIVORS ARE COPING AMID THE COVID-19 PANDEMIC: A MIXED-METHODS STUDY**

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Cancer survivors can have many needs during the first year after cancer treatment and require resources to support these needs that may not be available during the COVID-19 pandemic. Older cancer survivors ( $\geq 60$  years) are most vulnerable to the negative effects of COVID-19 and have specific survivorship needs. The objective of this study was to examine how older persons ( $\geq 60$  years) who have recently ( $\leq 12$  months) completed treatment for cancer are coping during the COVID-19 pandemic. We used a convergent mixed method design (QUAL+quan). Quantitative data were collected using the Brief-COPE questionnaire, which was designed to assess responses for coping with life stress. Qualitative data were collected using 1:1 telephone interviews that explored participant's experiences and strategies for coping with their cancer-related concerns during the pandemic. Of the 30 participants, 56.7% identified as female, and the mean age of the sample was 72.1 years (SD 5.8, Range 63–83). Brief-COPE responses indicated that the coping strategies most commonly used by participants were self-initiated: acceptance ( $n = 29$ , 96.7%), self-distraction ( $n=28$ , 93.3%), and taking action ( $n = 28$ , 93.3%). Participants also used instrumen-

tal (n=26, 87%) and emotional support (n=25, 83.3%) strategies with those within their networks. Through our descriptive thematic analysis, we identified three interconnected themes: 1) harnessing experiences; 2) redeploying coping strategies; and 3) dissonance between available and familiar coping strategies. The experiences of older cancer survivors formed the roots of their coping strategies that they had learned through cancer or other illness, life, and work. In this way, coping strategies used during the pandemic were not new: they were redeployed and repurposed for coping with cancer related concerns during the pandemic. Sometimes older cancer survivors observed a dissonance between the coping strategies that were available to them during the pandemic versus those that were familiar, which affected how they coped with their cancer-related concerns. Study results illuminate the range of experiences and strategies used by older cancer survivors for coping with their cancer-related concerns during the pandemic. These insights may inform the development or enhancement of cancer and non-cancer resources to support coping, particularly using remote delivery methods where patients and survivors cannot attend in-person within and beyond the pandemic.

### **AN ETHNOGRAPHIC STUDY EXPLORING THE CULTURAL BELIEFS INFLUENCING CERVICAL CANCER SCREENING BEHAVIORS AMONG ASIAN INDIAN WOMEN IN THE UNITED STATES**

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Asian Indians are among the three fastest growing Asian minority populations in the U.S., but they do not meet the Healthy People 2020 cervical cancer screening goals. Their rates are 70% compared to 83% rates among non-Hispanic Whites. Although most cervical cancers are precluded by the Human Papilloma Virus (HPV) vaccine, a systematic review revealed the need for qualitative studies to explore influences of cultural beliefs on cervical cancer screening behaviors among Asian Indian Women (AIW). The purpose of this project was to explore the influence of cultural beliefs on cervical cancer screening (defined as pap smears)

behaviors among AIW. A qualitative descriptive ethnographic design using descriptive ethosemantic semi-structured questions were used to investigate the cultural impact on cervical cancer screening behaviors among a purposive sample of 15 AIW between the ages 21 to 49 years of age. Data analysis was guided by Spradley's ethnographic analysis strategies. Five themes influenced cervical cancer screening among these women: locus of control, concept of health, 'no sex before marriage', awareness, and body image. A healthy internal locus of control, a sense of being healthy, awareness (knowledge about cervical cancer and its prevention), and a positive body image supported cervical cancer screening behaviors. An external locus of control, belief that health is not a priority, "no sex before marriage", and a low body image were barriers to cervical cancer screening behaviors. Locus of control includes beliefs of responsibility for health, doctor preference, parental control, patriarchal family values, and "we don't talk about sex or reproduction". The concept of "no sex before marriage" influenced timing of the first pap smear and consent for HPV vaccine for themselves or their children. Awareness about HPV and recommendation from the provider were facilitators and lack or limited knowledge of HPV and the concept of 'no sex before marriage' were barriers to receiving and/or giving consent for their children to have the HPV vaccine. Notwithstanding their cultural beliefs, being employed, having health insurance and recommendation from their providers had a positive impact on cervical cancer screening. This study revealed AIWs cultural beliefs that influence cancer screening behaviors. This study's findings can inform prevention programs and future research to improve cultural sensitivity and training of providers to address cervical cancer screening among AIW.

### **AFRICAN AMERICAN PATIENTS WITH CANCER AND ADVANCE CARE PLANNING: WHERE IS THE GAP?**

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There is consistent evidence suggesting that African-Americans are less likely to engage in goals of care discussions, complete advance directives, and enroll in hospice or palliative care than Caucasians. In patients with cancer, there is a marked disparity in advance directive completion rates by African-Americans leading

to inadequate symptom management and end-of-life care. Black race has been found to be an independent predictor for low rate of completion of advance directives. The purpose of this pilot study was to determine the relationships between medical mistrust, decisional control preference, and advance care planning readiness in African-American patients diagnosed with cancer. A convenience sample of 66 patients with cancer who self-identified as African-American or Black were recruited from a National Cancer Institute-designated comprehensive cancer center. This study included a cross-sectional, descriptive, correlational study design using Group-Based Medical Mistrust Scale, Control Preferences Scale, Advance Care Planning Readiness Scale, and a demographic questionnaire. Data were analyzed using descriptive and inferential statistics. Most of the sample was male (68%) with a mean age of 55.7 (Range = 22–83). Breast cancer comprised the largest percentage (33%) of the sample. Sixty-eight percent of the sample was receiving active treatment. Almost 44% of the sample reported having an advance care planning conversation with a healthcare provider during their lifetime. Only 23% of participants had completed an advance directive. African-American cancer patients tended to prefer shared responsibility for treatment decision making ( $M = 2.69 \pm 1.1$ ); had moderate levels of medical mistrust [ $M = 29.5 \pm 5.3$  (total),  $7.8 \pm 1.9$  (support subscale),  $11.2 \pm 4.6$  (suspicion subscale),  $10.5 \pm 3.8$  (discrimination subscale)], and demonstrated moderately high advance care planning readiness ( $M = 39.2 \pm 8.6$ ). There were no statistically significant relationships between these variables. It is interesting that despite higher levels of advance care planning readiness, advance directive completion was low. Since there were no statistically significant relationships between variables, further research with a larger sample is warranted to determine what barriers may exist to advance directive completion. Given the disparities that exist in this population with advance care planning and end-of-life care, it is important to explore the associated factors. There are no published studies exploring these variables in African-American patients with cancer.

#### **CO-OCCURRENCE OF MORNING FATIGUE AND DEPRESSION PROFILES ARE ASSOCIATED POORER QUALITY OF LIFE OUTCOMES IN ONCOLOGY OUTPATIENTS RECEIVING CHEMOTHERAPY**

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Fatigue and depression are common symptoms reported by patients receiving chemotherapy (CTX). While recent evidence supports an evaluation of diurnal variations in fatigue, less is known about how morning fatigue and depression co-occur in oncology patients. In addition, little is known about risk factors for the co-occurrence of both symptoms. The purpose of this project was to identify subgroups of patients with distinct morning fatigue AND depression profiles and determine which demographic and clinical characteristics and quality of life (QOL) outcomes differed among these subgroups. Outpatients ( $n=1335$ ) were recruited during their first or second cycle of CTX. Morning fatigue and depression were measured using Lee Fatigue Scale and Center for Epidemiological Studies-Depression scale. Combined latent profile analysis was used to identify subgroups. QOL was measured using the Medical Outcomes – Short Form-12 (SF-12). Three latent classes with distinct symptom severity profiles were identified (i.e., Low Morning Fatigue and Low Depression (Low FD) (47.8%), Moderate Morning Fatigue and Moderate Depression (Moderate FD) (41.5%), High Morning Fatigue and High Depression (High FD) (10.7%)). Compared to the other two classes, patients in the High FD class were more likely to be younger, female, single, unemployed, live alone, and have a lower income. In addition, patients in the High FD class were more likely to have a lower functional status, a worse comorbidity profile, were less likely to exercise regularly, and were more likely to report depression and back pain. Compared to patients in the Low FD class, patients in the High FD class were more likely to have breast cancer and to have received surgery, CTX and radiation therapy. Physical Component and Mental Component summary scores on the SF-12 were significantly different among the three classes (i.e., Low FD > Moderate > High). Of note, the Physical and Mental Component scores for the Moderate and High FD classes were below the United States population norms. Findings suggest that the co-occurrence of morning fatigue and depression results in significant decrements in QOL. This study identified multiple risk factors that can be used by clinicians to identify patients who are at increased risk for the co-occurrence of more severe morning fatigue and depression. Earlier intervention with these patients may prevent higher symptom severity and poorer QOL outcomes.

## C-REACTIVE PROTEIN AND FATIGUE AMONG CANCER SURVIVORS

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Cancer-related fatigue (CRF) is a complex experience with inter-individual variability. The underlying mechanisms of CRF are not fully understood; however, evidence suggest that chronic inflammation is often in the pathway. C-reactive protein (CRP) is one inflammatory marker that may be associated with fatigue. The purpose of this study was to examine associations between CRP and self-reported fatigue in cancer survivors in a population-based sample of US adults. Data were analyzed from the 2017–2018 National Health and Nutrition Examination Survey (NHANES), a series of ongoing cross-sectional, large-scale nationally representative surveys, which include household and mobile examination center interviews and physical examinations. Inclusion criteria were NHANES participants  $\geq 20$  years of age with a self-reported diagnosis of cancer or malignancy of any kind. CRP was measured from blood samples during study examinations. Fatigue was self-reported by using a single item from the Patient Health Questionnaire-9 (PHQ-9). Multiple logistic regression models were used to estimate the association of CRP with fatigue scores, adjusting for multiple variables (i.e., age, gender, race/ethnicity, education, marital status, body mass index, smoking status, depression and pain symptoms, sleep hours, physical activity, general health condition). All analyses used the Taylor series linearization to account for the complex sampling design in the dataset. Among 431 cancer survivors (57.8% men; mean age 63.4 years), common cancer types were prostate (16.7%), breast (15.1%), non-melanoma skin cancer (12.8%), melanoma (6.5%), and colon (6.3%). Within the composite NHANES dataset, the estimated rate of cancer was 10.7%. In the unadjusted model, compared to survivors without fatigue, survivors with fatigue were unmarried/unpartnered, current smokers, had higher depression and pain scores, were physically inactive, had worse general health conditions, and had higher CRP levels (all  $p < .05$ ). In a multivariate adjusted model, fatigue was significantly associated with depressive symptoms (OR: 1.38, 95% CI 1.14, 1.68) and overall poor health condition (OR: 5.45, 95% CI 1.58, 18.8). The results suggest that depressive symptoms and self-rated health con-

ditions are potential targets to reduce fatigue among cancer survivors. Higher CRP levels among survivors with fatigue warrant further longitudinal studies with a broad range of inflammatory markers and multidimensional measures of fatigue and other symptoms to better understand mechanisms of fatigue in cancer survivors.

## THE USE OF MOBILE TECHNOLOGY FOR PHYSICAL ACTIVITY AND SYMPTOMS MONITORING AMONG CANCER SURVIVORS WITH MULTIPLE CHRONIC CONDITIONS

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Mobile technology can be used to monitor physical activity (PA) and daily symptoms. However, technical difficulties and the obligation to wear devices are challenges. This study aimed to test the feasibility of using a wearable activity tracker and mobile ecological momentary phone application (mEMA) to continuously monitor PA and daily symptoms. This preliminary report is part of a pilot study on the effects of technology-enhanced home-based exercise (iHBE) program. Solid tumor cancer survivors diagnosed with other chronic conditions participated in a 4-week iHBE program were recruited in this analysis. Participants were asked to reported their experience and satisfaction of using a wearable device (Fitbit) and mEMA daily for 28 days. The feasibility of the mobile device was measured by 1) percent compliance and response rate; 2) participants' opinions and satisfaction; and 3) participants' reports of discomforts and/or complications. Eight cancer survivors age from 56 to 78 years old were included. Compliance with the Fitbit instruction ranged from 96 to 100% with an average satisfaction of 3.8 on the scale of 1 to 5. Participants reported the Fitbit was "fairly simple to use," "comfortable to wear," "very helpful to track activities and progress," and helped one participant "gain a better understanding of sleep patterns and calorie burn." The compliance of daily mEMA responses was low with the highest response rate at 86%. Participants reported dissatisfaction with this application due to technical glitches, being a "nuisance," and feeling "disappointed" when the reporting window was missed. Other issues include the inability to download the application due to the memory space and disturbing sleep. Findings showed the potential benefits of us-

ing mobile technology for monitoring physical activity and daily symptoms with minimal complications. The stability of mobile technology and personal preference remain major challenges in this field. Providing weekly feedback using the mobile technology data may be a contributing factor for good compliance for the study. Future studies with larger sample sizes are needed. Mobile technology has been used to promote health in many patients with chronic conditions. The study provides evidence for the benefits and potential advantage of these technologies in cancer care.

### **SATISFACTION WITH A NURSE-LED INTERACTIVE VOICE RESPONSE SYSTEM AND SYMPTOM MANAGEMENT TOOLKIT INTERVENTION TO IMPROVE ADHERENCE AND SYMPTOM MANAGEMENT IN PATIENTS NEWLY PRESCRIBED AN ORAL ANTICANCER AGENT**

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Oral anticancer agents (OAAs) are increasingly being prescribed. The paradigm shift of cancer care from oncology clinics to the home environment coupled with the introduction of more OAAs has required nurses to respond to changing delivery care models. OAA medications often have narrow therapeutic ranges and safety margins, which necessitates adherence and leaves patients susceptible to uncontrolled symptoms. Interactive voice response (IVR) technologies offer opportunities to enhance OAA adherence and symptom management. The purpose of this project was to describe patient satisfaction of the experimental arm of a randomized controlled trial involving an IVR to assess adherence and symptom management in patients newly prescribed an OAA. The Information-Motivation-Behavioral Skills (IMB) Model guided the study intervention. This cross sectional secondary analysis uses data derived from a National Cancer Institute-funded, randomized controlled trial, Improving Adherence to Oral Cancer Agents and Self Care of Symptoms Using an Interactive Voice Response (1R01CA162401-O1A1). Participant satisfaction of an intervention using an IVR to promote symptom management and OAA adherence over 12 weeks after initiating a new OAA is analyzed using descriptive statistics to summarize patient demographics and satisfaction of an IVR/Symptom Management Toolkit. Participants had a mean age of 61.82 years. Gastrointestinal (28.2%) cancer was most prevalent. Participants were either “very” or “highly”

satisfied with the IVR weekly calling system to assess symptoms (81%), IVR daily OAA adherence reminders (58%), and Symptom Management Toolkit (72%). Patients have favorable satisfaction with an IVR and Symptom Management Toolkit intervention that may improve adherence and symptom management. The frequency of IVR adherence reminders may vary among patients. Nurses are well-positioned to lead IVR interventions and to be actively involved in the development, implementation, and dissemination of IVR technologies through research and practice. Oncology nurses can also be vital to building algorithms within the IVR or technology-based platforms of the intervention specific to symptom management. Such algorithms could refer patients experiencing symptoms to the Symptom Management Toolkit or prompt patients to seek medical care if the patient-reported symptom is severe enough. Oncology nurses are an important stakeholder in determining the usability, acceptability, and feasibility of a technology-based intervention for patients receiving OAAs.

### **DIFFERENCES IN NEUROPSYCHOLOGICAL SYMPTOMS AND STRESS AMONG ONCOLOGY PATIENTS WITH DISTINCT NAUSEA PROFILES**

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Despite current interventions, 30% to 60% of oncology patients experience unrelieved chemotherapy-induced nausea (CIN). Limited information is available on the characteristics associated with risk for severe trajectories of unrelieved CIN. No studies have used a person centered approach, like latent profile analysis to evaluate the contribution of neuropsychological symptoms and stress to increased risk for CIN. The purpose of this project was to identify subgroups of patients with distinct CIN profiles and determine how these subgroups differ in demographic, clinical, severity of neuropsychological symptoms and stress characteristics. Oncology patients (n=1343) completed questionnaires that provided information on demographic, clinical, neuropsychological symptoms and stress characteristics. The occurrence of CIN was assessed six times over two cycles of chemotherapy (CTX) using the Memorial

Symptom Assessment Scale. Latent profile analysis was used to identify subgroups of patients with distinct CIN profiles. Differences among subgroups were evaluated using parametric and nonparametric statistics. Four distinct nausea profiles were identified: none (40.8%), increasing-decreasing (21.5%), decreasing (8.9%), and high (28.8%). Compared to the none class, patients in the high class were younger, had a lower functional status, a worse comorbidity profile, and were more likely to receive CTX on a 14-day cycle as well as high emetogenic CTX. In terms of neuropsychological symptoms, compared to the none class, patients in the other three classes had higher levels of depression, trait anxiety, sleep disturbance, morning and evening fatigue, and pain (all  $p < .001$ ). In terms of stress, compared to none class, patients in the high class had higher levels of general stress, avoidance of feelings, intrusive thoughts, hyperarousal responses, and disease-specific stress (all  $p < .001$ ). Given that 28.8% of patients reported the occurrence of CIN over the six assessments suggests that unrelieved nausea is a significant clinical problem that persisted over two cycles of CTX. The co-occurrence of high levels of neuropsychological symptoms and stress in these patients suggests that common underlying biological mechanisms (e.g., alterations in: microbiome-gut-brain axis; and/or hypothalamic-pituitary-adrenal axis) may contribute to inter-individual variability in the occurrence of CIN. Clinicians need to assess for CIN and for neuropsychological symptoms and stress in oncology patients undergoing CTX. In addition, patients who receive CTX on a 14-day and who receive high emetogenic CTX warrant additional assessments to evaluate the effectiveness of anti-emetic regimen.

### PIVOTING INTERVENTIONAL RESEARCH DURING THE PANDEMIC: CHALLENGES AND OPPORTUNITIES

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The emergence of the COVID-19 pandemic disrupted many clinical research studies as urgent considerations for the safety of research participants and staff halted routine activities. The purpose of this presentation is to describe the experience of pivoting a randomized

clinical trial to meet the challenges brought on by the pandemic. This information will advance oncology nursing science by showing how flexibility in recruitment, data collection, and intervention delivery methods can allow trials to adapt to unanticipated events. The study (1R37CA240707-01) is a two-group randomized clinical trial of a 4-session psychoeducational and skills training intervention using structured in-person simulation for family caregivers of patients receiving radiation therapy. Accrual opened in December 2019 but enrollment was halted in March 2020 due to the pandemic. There were four challenges to address in order to continue this intervention study under restrictions to in-person contact: modifying data collection procedures, recruitment, maintaining the integrity of the intervention, and regulatory issues. Modifying data collection procedures to use phone and on-line surveys was relatively straightforward. We engaged radiation oncology nurses to confirm eligibility and introduce the study to the patient and caregiver, facilitating a new telephone consent process. Because hands-on simulation of medical care procedures was a key component of caregiver training, we made a decision to retain this step, including measures required to adhere to COVID-19 safety procedures, but changed the remaining sessions to remote delivery via telephone. Close collaboration with the IRB was critical to making pragmatic modifications to the protocol. Modifications were approved in June and enrollment resumed in July 2020. Challenges encountered with remote recruitment and consent led to use of a hybrid approach that included both telephone and in-person consent 91% of the time. Since July 2020, 12 dyads have enrolled. Refusal rates have increased. The intervention modifications have been well-received from caregivers who want to limit their exposure in the clinic. Successful pivoting in response to the pandemic required creative protocol modifications that minimized in-person contact while maintaining scientific validity. Remote intervention delivery yielded unexpected benefits in terms of feasibility and implementation, although increased refusal rates may require extended study duration. Caregivers appreciated the flexibility of participating remotely after attending the first in-person session.

### PREDICTORS OF NONADHERENCE TO RADIATION THERAPY SCHEDULES AMONG HEAD AND NECK CANCER PATIENTS

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Head and neck cancer patients often undergo a demanding treatment schedule including radiation.

Nonadherence to radiation therapy schedules is a documented problem among head and neck cancer patients that could negatively affect treatment outcomes. No known studies had examined if the nonadherence may be related to symptoms head and neck cancer patients experience during treatment. This retrospective, descriptive study examined whether demographics, clinical characteristics, or physical and psychological symptoms were related to nonadherence among head and neck cancer patients. The electronic medical records of 262 head and neck cancer patients at a southeastern U.S. cancer center who received radiation treatment from July 2017 to June 2018 were reviewed to determine whether nonadherence was related to symptom scores and other patient and clinical-related factors. There were statistically significant differences between nonadherent and adherent patients. Nonadherent patients were more likely to be female, admitted to the cancer center as inpatients during treatment and received outpatient IV fluids during treatment. Nonadherent patients reported higher mean symptom scores on 9 out of 12 symptoms measured with the Edmonton Symptom Assessment Scale revised (ESAS-r-CSS) instrument during treatment, illustrating that this group had a higher symptom burden. Concurrent chemoradiation and higher symptom scores of tiredness (AOR=1.343) and depression (AOR=1.563) predicted patients were more likely to be nonadherent. Patients with tongue tumors (AOR=.197) and increased symptom scores of spiritual well-being (AOR=.643) and constipation (AOR=.684) were less likely to be nonadherent. Findings support routine screening for symptoms and distress in this population, as well as future prospective research to confirm and build on the results. Patients experiencing more demanding treatment regimens and symptoms of tiredness and depression may be at risk for unplanned treatment breaks. Multiple symptoms at low thresholds may have a cumulative effect, therefore clinicians may consider reviewing each screening with patients to determine individual impact on the patient's ability to adhere to treatment regimens. Enhancing spiritual well-being may help HNC patients adhere to their treatment schedules.

#### **ADOLESCENT/YOUNG ADULT HEMATOPOIETIC STEM CELL TRANSPLANT SURVIVOR AND CAREGIVER MENTAL HEALTH**

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Patients who receive a hematopoietic stem cell transplant (HSCT) experience a variety of symptoms, including psychological symptoms, as a direct result of their treatment. Caregivers can also experience secondary trauma related to watching their child undergo treatment. The purpose of the parent study was to describe symptoms experienced by survivors of pediatric hematopoietic stem cell transplant (HSCT), and demographic and treatment-factors associated with ongoing symptomology. The purpose of this secondary analysis is to examine psychological symptoms AYA survivors and their caregivers may be experiencing following HSCT. A convenient sample of 50 pediatric survivors and their primary caregiver were recruited from a single institution and completed a cross-sectional pilot study with a single time point. A subset of 19 dyads (N=36) of AYA (13 years and older) and their caregivers completed a demographic survey, the Impact of Events Scale-Revised (IES-R), and the Brief Symptom Inventory (BSI) via REDCap. Analyses included descriptive statistics and correlations between subscale scores and current age, age at transplant, years out from transplant, diagnosis, and transplant type. AYA had a mean age of 16.37 (SD±2.65) years (range 13-23), were primarily male (52.6%), non-Hispanic Caucasian (84.2%). AYA were on average 5.37 (range 1-9) years post autologous HSCT (94.7%). Caregivers had a mean age of 47.17 (SD±6.6) years (range 38-65) and were primarily non-Hispanic Caucasian (84.2%), female (89.5%), mothers (84.2%), and married (94.7%). Caregivers reported on average 14.74 (SD±14.75) psychological symptoms and AYA reported on average 15.05 (SD±9.41) symptoms, which is above the mean of 11.15 (SD±10.67) in a national sample of healthy adults. AYA and caregiver group means were not considered clinical level for any BSI domain. AYA means for distress on IES-R subscales were intrusion 0.74 (SD±0.69), avoidance 0.64 (SD±0.84), and hyperarousal 0.46 (SD±0.60) which falls between not at all (0) and a little distressing (1). Significant correlations were noted in AYA between obsessive compulsion and time since HSCT ( $r=-0.476$ ,  $p>.05$ ), autologous HSCT with paranoia ( $r=0.539$ ,  $p>.05$ ), positive symptom total ( $r=0.539$ ,  $p>.05$ ), and avoidance ( $r=0.558$ ,  $p>.05$ ), hyperarousal and age ( $r=0.532$ ,  $p>.05$ ) and non-Hispanic ethnicity ( $r=0.620$ ,  $p>.01$ ). AYA and caregivers continue to experience psychological symptoms at numbers above a national sample. Survivorship care plans and follow-up appointments need to include assessment for psychological symptoms.

## MISSED NURSING CARE AMONG THE ONCOLOGY POPULATION

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Identified as a universal phenomenon, missing nursing care has a significant impact on patient safety and outcomes. Oncology patients are at a greater risk for experiencing adverse events associated with missed nursing care due to their immunocompromised state. The objectives of this study were to identify aspects of nursing care most frequently missed as well as associated patient factors among oncology patients. To address the study objectives, a cross-sectional, exploratory survey design study was conducted between January to August 2019 with a convenience sample of hospitalized oncology patients. Participants were asked to complete three measures: a demographics questionnaire, the Katz Index of Independence in Activities of Daily Living, and the MISSCARE Survey-Patient. Differences and relationships between patient characteristics (age, gender, ethnicity, education level, diagnosis, time elapsed since diagnosis, treatment regimen, and functional status) and patient-reported missed nursing care were explored using inferential statistics based on the level of data. A total of 111 oncology patients participated in the study. Oral care was reported as the most frequent element of missed care. Oral care was missed 72.9% ( $M = 3.68$ ) of the time, followed by ambulation (65.5%,  $M = 3.36$ ), and assistance to chair (58.9%,  $M = 2.97$ ). Of the patient factors examined, findings demonstrated a significant positive association between missed care and age,  $r(106) = 0.22$ ,  $p = 0.02$ . Patients with a hematology diagnosis reported less missed care ( $2.29 \pm 0.63$ ) compared to patients with an oncology diagnosis ( $1.89 \pm 0.58$ ),  $t(106) = 2.56$ ,  $p = 0.012$ . Overall, findings indicate that missed care is prevalent among the oncology population. While age and type of cancer was found to be significant factors, further research should be directed at whether other individual factors are associated with missed care. The results from this study will assist clinicians in providing focused patient centered care among oncology patients and their families while receiving treatment in the inpatient care setting. While missed nursing care has been extensively studied over the past decade, there remains limited research examining patient reported missed nursing among the oncology population.

## WORST PAIN SEVERITY PROFILES ARE ASSOCIATED WITH DISTINCT PHENOTYPIC CHARACTERISTICS AND WORSE QUALITY

## OF LIFE OUTCOMES IN ONCOLOGY OUTPATIENTS UNDERGOING CHEMOTHERAPY

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Pain is a distressing symptom for oncology patients receiving chemotherapy (CTX). Little is known about phenotypic characteristics that are associated with worst pain (WP) profiles during chemotherapy. The purpose of this project was to identify distinct WP profiles in outpatients receiving CTX and evaluate for differences in phenotypic and quality of life (QOL) characteristics among the WP classes. Oncology outpatients ( $n=1343$ ) completed questionnaires six times over two CTX cycles. WP intensity was assessed using a 0 (no pain) to 10 (worst pain imaginable) numeric rating scale. QOL was assessed using the Multidimensional QOL Scale-Cancer (MQOLS) and the Medical Outcomes Study-Short Form (SF12). Latent class analysis was used to identify subgroups of patients with distinct WP severity profiles. Four latent classes with distinct WP profiles were identified (No [30.5%], Mild [12.1%], Moderate [27.8%], Severe [29.6%]). Compared to the None class, patients in the Severe WP class had less education, were less likely to be employed, were less likely to be married/partnered, had a lower annual household income, and were less likely to exercise on a regular basis. Patients in the Severe WP class were more likely to report a history of smoking, as well as a diagnosis of ulcer or stomach disease, anemia, depression, back pain, osteoarthritis, and rheumatoid arthritis. In addition, patients in the Severe WP class had a higher body mass index, a higher level of comorbidity, were more likely to report both cancer and non-cancer related pain, and a poorer functional status. Compared to the other three WP classes, patients in the Severe WP class reported significantly worse physical, psychological, social well-being and total MQOLS scores. Similar pattern was found with the SF-12 Physical Component and Mental Component Summary scores. For the Severe WP class, both summary scores were below that normative scores for the general US population. This study is the first to identify distinct WP profiles in a large sample of oncology patients receiving chemo-

therapy. The risk factors associated with the more severe WP classes can be used by clinicians to identify higher risk patients. Given that almost 70% of the patients reported pain, clinicians need to assess both cancer and non-cancer pain and address risk factors during their clinical encounters and provide efficacious pharmacologic and nonpharmacologic pain management interventions.

### **SYMPTOM CLUSTERS REMAIN RELATIVELY STABLE OVER A CHEMOTHERAPY CYCLE IN PATIENTS WITH GYNECOLOGIC CANCER**

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Patients with gynecologic cancer experience several symptom clusters associated with chemotherapy (CTX). Little is known about how these symptom clusters change over time. Improved understanding of how the number and types of symptom clusters change over time is essential to the development of interventions that target multiple co-occurring symptoms. The purpose of this project was to assess the relative stability of symptom clusters across a CTX cycle in patients with gynecologic cancer. This was a longitudinal, descriptive study. Eligible patients (n=232) were English-speaking adults (>18 years), were diagnosed with gynecologic cancer, had received CTX within four weeks of enrollment, and were scheduled to undergo at least two additional cycles of CTX. Data were collected prior to the next planned dose of CTX (T1), one week after CTX (T2), and two weeks after CTX (T3). Three dimensions of the symptom experience (occurrence, severity, distress) were assessed using a modified version of the Memorial Symptom Assessment Scale. Symptom clusters for each dimension were identified through exploratory factor analysis using unweighted least squares estimation. GEOMIN rotated factor loadings with absolute values  $\geq 0.30$  were considered meaningful. Two- through six-factor solutions were assessed for simple structure and clinical relevance. Five-factor solutions were selected for each of the three symptom dimensions at T1, T2, and T3. Hormonal, respiratory, and weight change symptom clusters were identified across all time points and symptom dimensions. Two symptom clusters varied by time and symptom

dimension. A psychological symptom cluster was identified at T1 for occurrence and severity and at T2 and T3 for all three symptom dimensions. A gastrointestinal symptom cluster was identified at T1 for occurrence and at T2 and T3 for all three symptom dimensions. A psychological/gastrointestinal symptom cluster was identified at T1 for distress, while a gastrointestinal/epithelial symptom cluster was identified at T1 for severity and distress. Our results suggest that hormonal, respiratory, and weight change symptom clusters remain relatively stable across a cycle of CTX in patients with gynecologic cancer. Psychological and gastrointestinal symptom clusters may be more apparent in the weeks following CTX. Research that aims to explain associations between gastrointestinal, psychological, and epithelial symptoms prior to CTX is warranted. Interventions that target symptom clusters have the potential to reduce symptom burden throughout a cycle of CTX.

### **PALLIATIVE CARE NEEDS OF YOUNG AND MIDDLE AGE ADULTS (20–59) WITH CANCER: A PILOT STUDY**

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The purpose of this descriptive research pilot study is to explore and describe the palliative and supportive care issues and needs of young and middle age adults (20–29) with a potentially life limiting cancer diagnosis. Specifically, this study examines perceived changes relating to quality of life and functional status since diagnosis. A convenience sample of 15 oncology patients completed a demographic survey and two questionnaires relating to quality of life and functional health status. In addition, they were asked seven open ended structured survey questions relating to personal descriptions of quality of life, available resources, and personal understanding of palliative care. Quality of Life Dimensions are significantly impacted with this population including physical, psychological, and social factors. Several reoccurring themes associated with their age and diagnosis also emerged including delayed diagnosis, employment and financial issues. The majority of this population lives in rural communities and has limited access to resources. Finally, none of the participants could accurately describe palliative care and only 15% had been introduced to palliative care services while being treated for their cancer. All dimensions associated with quality of life are impacted by the diagnosis of cancer for a young and middle age adult. Palliative care is a resource that could help address some of these needs. Clearly for

this population, palliative care is not being well communicated or integrated in this primarily rural young cancer population. The results from this study provide valuable information and direction for planning competent palliative and supportive care to this unique cancer population. By using the CDC HRQOP-14 it will be interesting to compare the scores of this cancer population with a “healthy” young and middle age population. In addition, there are several themes that have emerged from the interviews including slow diagnosis and treatment and lack of knowledge about or access to palliative care services. The majority (80%) of this population lives in rural communities. They are being treated in outpatient oncology centers in an urban setting and then returning to their families and communities and health care providers with limited palliative care resources. Funding: American Nursing Foundation

### WHAT DO CANCER SURVIVORS BELIEVE CAUSED THEIR CANCER DIAGNOSIS?

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There is a growing body of literature about risk-factors that can cause cancer. Given that proper risk reduction and healthy lifestyles can prevent 4 in 10 cancer diagnoses, it is important to understand what cancer survivors believe caused their cancer so as to inform relevant risk reduction interventions. In this secondary analysis, we used cancer survivor responses on the valid and reliable Causes Subscale of the Revised Illness Perception Questionnaire (IPQ-R), which lists 18 possible causes of illness. For each cause, SPSS was used to determine the frequencies and percentages of cancer survivors who believed that it caused their cancer. To identify sociodemographic and clinical characteristics associated with the top three possible causes, separate logistic regression models were conducted where each cause was treated as an outcome variable. Of the 1,001 participants, most identified as Caucasian (n=764, 77%) and female (n=845, 85%) that were an average of 61 years old (SD 12). Participants were primarily diagnosed with breast cancer (n=656, 66%) that was diagnosed an average of 9 years previously (SD 5.2). The most common causes that participants believed caused their cancer were: stress or worry (n=498, 51%), pollution in the environment (n=471, 48%), and chance or bad luck (n=412, 42%). Each logistic model was statistically significant indicating that the models were able to distinguish between those who did and did not believe that

each cause was a cause for their cancer. Those who were more likely to believe that stress or worry was a cause for their cancer had children, were younger, and identified as female. Regarding pollution in the environment, those who were younger, born outside of Canada, and female were more likely to believe this to be a cause for cancer. Those who were younger and had a higher level of education were more likely to believe that chance or bad luck was a cause for cancer. Study results illuminate beliefs that cancer survivors have about varying causes for their cancer diagnosis and identify characteristics of cancer survivors who are more likely to believe what caused their cancer. Results can be used to plan risk-reduction interventions and highlight groups of cancer survivors (e.g., younger women) to whom such interventions can be targeted.

### FACTORS ASSOCIATED WITH SLEEP DISTURBANCES IN WOMEN UNDERGOING TREATMENT FOR EARLY STAGE BREAST CANCER

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Sleep disturbance is a common complaint in women undergoing treatment for breast cancer. There is evidence that sleep disturbance is associated with pain, anxiety, depressive symptoms, fatigue, nausea, and diminished quality of life in this population. Although there is some evidence that sleep disturbance may be associated with chemotherapy treatment, there is a lack of research on the relationship of sleep disturbance to radiation or aromatase inhibitor (AI) therapy. Increased incidence of sleep disturbance has been associated with younger age and higher BMI, but these results remain inconclusive, as do the results illustrating the relationship between sleep disturbance and estrogen receptor (ER), progesterone receptor (PR) and human epidermal growth factor receptor 2 (HER2) status. The primary aim of this secondary analysis was to explore the association of self-reported sleep disturbance severity as measured by the PROMIS 29<sup>®</sup> with other self-reported symptoms in patients with early stage breast cancer. Our secondary aim was to explore differences in self-reported sleep disturbances between patients receiving chemotherapy, radiation, AI therapy, or no adjuvant treatment for breast cancer. The tertiary aim of this study was to investigate the association of sleep disturbances with

patient and tumor characteristics. Data were collected from 167 participants recruited at the University of Pittsburgh Medical Center at the time of breast cancer surgery. Symptom measures were collected by self-report using the PROMIS 29<sup>®</sup> three months after initial surgery. Treatment type and participant demographics were collected via patient self-report, and tumor characteristics were collected from participant charts. There were significant differences in levels of reported sleep disturbance between treatment groups ( $p=0.026$ ) with significant differences between those receiving radiation and those receiving no adjuvant treatment ( $p=0.017$ ) and between those receiving chemotherapy and those receiving no adjuvant treatment ( $p=0.015$ ). Significant associations were found between sleep disturbance and pain severity, nausea severity, decreased physical function, anxiety, depressive symptoms, fatigue, and decreased ability to participate in social roles and activities. Sleep disturbance was also associated with younger age ( $p=0.008$ ) and HER2 positive status ( $p=0.008$ ). Patients undergoing chemotherapy or radiation for breast cancer report higher levels of sleep disturbance than those not undergoing therapy. Sleep disturbance is associated with other symptoms common to patients with cancer and should be assessed for as playing a central role in symptom burden.

### **PERCEPTIONS OF STRESS: PATIENT AND CAREGIVER EXPERIENCES WITH STRESSORS DURING HOSPITALIZATION**

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Hospitalization for a cancer diagnosis and treatment may trigger stressful experiences for patients and family caregivers. The purpose of this study was to identify patients' and caregivers' perceptions of stressors during hospitalization and evaluate their education needs. Because stress has been associated negatively with quality of life and patient outcomes, it is critical to understand the stressors patients experience while acutely hospitalized. Families and caregivers experience stress related to cancer diagnoses and may further influence patient outcomes. The goal of this study is to understand the unique stressors experienced by patients and families during hospitalization so that nurses may better educate towards patient and family needs and provide holistic care at the bedside. This descriptive correlational research design using convenience

sampling was IRB approved in June 2018. Quantitative and qualitative data were collected from patients with cancer and family caregivers during hospitalization using an updated version of the intensive care unit Environmental Stressors Questionnaire (ESQ). The sample consisted of 41 participants, including 26 patients with various cancer types at different stages of disease and 15 family caregivers of patients with cancer who reported being at the patient's bedside for at least four hours per day during hospitalization. Patients reported experiencing mild to extreme stress for sleep deprivation, pain, tube and line restrictions, and financial issues. In addition to these stressors, family caregivers also perceived that waiting for test results was a main reason for stress in patients. Data showed a positive significant correlation between the total sample mean stress scores of patients and their need for additional education on health-related issues. The results of this study can guide healthcare providers in prioritizing the assessment of patients with cancer to ensure that they receive prompt interventions for any stressors that they experience during their hospital stay. Lack of communication from healthcare providers was a main stressor during hospitalization, indicating the need to enhance communication strategies between patients, caregivers, and healthcare providers. Nurses play a major role in managing patients' stress and are well positioned to lead an interdisciplinary care team, including physicians, respiratory therapists, rehabilitation therapists, and other members of the healthcare team, with the goal of providing better stress management strategies for patients.

### **SLEEP DISRUPTION IN ADULTS LIVING WITH BREAST CANCER AND HUMAN IMMUNODEFICIENCY VIRUS (HIV): A COMPARATIVE STUDY**

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Sleep disruption is a serious public-health problem that impacts persons' overall functioning and quality of life. About one third of the general population experience trouble sleeping. Sleep disruption is seen at higher rates in persons living with chronic health conditions. Studies have analyzed sleep disruption within specific disease populations, but there has been little research comparing sleep in individuals with different chronic conditions. This secondary data analysis described and compared sleep disruption in two common chronic

disease populations, breast cancer and Human Immunodeficiency Virus (HIV). The data described in this descriptive comparative study were collected from two separate studies: one focused on fatigue and sleep disruption in women newly diagnosed with breast cancer, another focused on cognition in adults living with HIV. In both studies, sleep quality was self-reported using the Pittsburgh Sleep Quality Index (PSQI). Analysis of variance or chi-square tests examined the differences between breast cancer and HIV. The data consisted 22 adults with breast cancer, aged 29 to 72 ( $M = 53.1 \pm 13.1$ ), and 24 adults living with HIV, aged 50 to 67 ( $M = 56.3 \pm 5.1$ ). Seventy-two percent of all patients ( $N = 46$ ) in this analysis reported trouble sleeping (global PSQI scores  $> 5$ ). The mean sleep duration of 6.7 ( $\pm 1.7$ ) hours in breast cancer and 6.4 ( $\pm 1.8$ ) hours in HIV are both below the recommended 7-9 hours of sleep for adults. Nearly all (90% breast cancer and 96% HIV) patients reported frequent nighttime or early morning awakening. Compared to breast cancer, HIV patients reported significantly longer sleep latency (31.9 vs. 18.4 minutes,  $p = 0.001$ ). More HIV patients reported having pain (75% vs. 50%,  $p = 0.079$ ) while more breast cancer patients reported feeling too hot (64% vs. 37%,  $p = 0.077$ ) as contributing factors to trouble sleeping. Although the data demonstrated poor sleep (sleep efficiency of 83% and 79% in breast cancer and HIV, respectively) and frequent sleep disturbances, 64% breast cancer and 79% HIV patients self-rated good sleep quality. This study demonstrates a high prevalence of sleep insufficiency and sleep disruption in adults living with breast cancer or HIV. Insufficient sleep interferes with disease management, impacting medication adherence, exacerbating symptoms, and leading to increased mortality. Recognizing and treating sleep problems has the potential to improve health outcomes.

### **PREDICTORS FOR PERCEIVED GENERAL HEALTH AMONG BREAST CANCER SURVIVORS: BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM 2016**

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This secondary data analysis aims to examine the association between sociodemographic, environmental,

clinical and lifestyle behaviors with poor/fair perceived general health among breast cancer survivors. The number of breast cancer survivors continues to increase due to early detection and treatment. For long-term survivors, the relationship between socio-demographic, environmental, clinical and lifestyle behaviors and overall perceived health or health-related quality of life (HRQoL) is less clear. As a chronic disease, it is imperative to understand survivors' health behaviors to identify modifiable lifestyle factors to enhance survivorship. We used a descriptive-correlational design to analyze the cross-sectional data from the cancer survivorship module in 2016 Behavioral Risk Factor Surveillance System (BRFSS), which included a nationally representative sample generated using the multi-stage random sampling methods. We included 907 adult women diagnosed with breast cancer who had completed cancer treatment at the time of the survey. We used hierarchical logistic regressions to identify predictors. In the multiple regression model, education, exercise, sleep, number of comorbidities, number of functional issues, and number of sick days related to physical and mental health were significant predictors of poor/fair health in breast cancer survivors. Survivors with lower education ( $\chi^2 = 22.42$ ,  $p < 0.001$ ), those who did not exercise during the past 30 days ( $\chi^2 = 4.64$ ,  $p = 0.031$ ) were more likely to report fair/poor health than those with higher education and those who exercised. Women with  $< 7$  hours or  $10+$  hours sleep tended to have higher rate of fair/poor health than those who slept for 7 to 9 hours ( $\chi^2 = 9.42$ ,  $p = 0.024$ ). In addition, as the number of comorbidities increased ( $\chi^2 = 10.00$ ,  $p = 0.019$ ), the number of functional issues increased ( $\chi^2 = 22.01$ ,  $p < 0.001$ ), or the number of sick days increased due to physical ( $\chi^2 = 45.29$ ,  $p < 0.001$ ) or mental health ( $\chi^2 = 8.16$ ,  $p = 0.017$ ), the rate of fair/poor health also increased. Identifying breast cancer survivors vulnerable for fair/poor health and examining the risk factors will help healthcare professionals develop effective and targeted interventions to improve the health and quality of life in this population. Early and ongoing identification of sleep disturbance and treatment may minimize symptom burden. Healthcare providers should address both the comorbid disease and the risk factors for poor health to provide comprehensive cancer-related follow-up care.