

# 2017 Oncology Nursing Society Annual Congress: Late-Breaking Podium and Poster Abstracts

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## Podium Sessions

**OPIATE ADHERENCE IN AFRICAN AMERICANS BEING TREATED FOR CANCER PAIN.** Katherine Yeager, RN, PhD, FAAN, Emory University, Atlanta, GA; Bryan Williams, PhD, Emory University, Atlanta, GA; Salimah Meghani, PhD, MBE, RN, FAAN, University of Pennsylvania School of Nursing, Philadelphia, PA; Hannah Cooper, ScD, Rollins School of Public Health at Emory University, Atlanta, GA; Tammie Quest, MD, Emory University, Atlanta, GA; Deborah Bruner, PhD, RN, FAAN, Emory University, Atlanta, GA

African Americans (AA) experience a disproportionate burden of cancer pain and suffer worse treatment outcomes. The purpose of this observational study is to describe adherence of around the clock (ATC) opiates for AA being treated for cancer pain. The convenience sample consisted of 122 AAs treated with ATC opiates. Sociodemographic, clinical, pain (severity, interference, attitudes about pain/treatment), symptom burden, social support and quality of life data were collected at baseline. Pain data (severity and interference) were also collected at the one month follow-up. Medication adherence was measured by both self-report and the Medication Event Monitoring System (MEMSCap™) for ATC opiate. Associations among these variables and overall adherence to prescribed schedules were estimated using multiple regression. Mean age of the sample was 55.6 ( $\pm$  10.2), 61% were women, and 57% had at least some college education. Participants had various cancer diagnoses with 63.6% receiving chemotherapy in the last month. Mean pain severity and interference scores at baseline equaled 4.6 ( $\pm$  2.4) and 5.2 ( $\pm$  3.0) with worst pain in the last 24 hours at 6.4 and least pain at 3.1 (0–10 scale). Patients were prescribed either extended release Morphine (65.3%), extended release Oxycodone (29.8%) or Methadone (4.8%) and reported 71.5% ( $\pm$  26.7) relief from their pain treatment. At follow-up, self-report adherence showed that 57.7% and 54.8% reported taking the ATC opiates as prescribed (correct dose at the correct time) for the past 1, 2 days respectively. Mean dose adherence measured by MEMS over a 30 day period was 59.8% ( $\pm$ 28.5), while mean schedule adherence was 33.0% ( $\pm$  31.0). In adjusted analysis, 11% of the variance in adherence to scheduled analgesia was explained by two independent variables (change in average perceived pain and social well-being;  $R^2=.11$ ;  $P, < .05$ ). For every one point increase in change of average perceived pain, about a 3.0% increase in schedule adherence was observed. For every one point increase in social well-being, a 1.4% increase in adherence is expected. Overall the adherence to ATC opiates is poor. The dynamic state of pain and the quality of personal relationships influence adherence. These findings enhance understanding of pain medication adherence in AAs and provide information on which to base much needed interventions to improve cancer pain management in AA.

**ACCEPTANCE AND USABILITY OF PERSONAL HEALTH NETWORK TECHNOLOGY FOR NURSE-LED CANCER CARE COORDINATION: PERCEPTIONS OF CALIFORNIA REGISTERED NURSES.** Janice F. Bell, PhD, MPH, MN, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Sarah C. Reed, MPH, MSW, LCSW, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Robin Whitney, PhD, RN, UCSF Fresno, Fresno, CA; Katherine Kim, PhD, MPH, MBA, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Jill Joseph, MD, PhD, MPH, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA

Despite growing national interest in nurse-led care coordination (CC), little research has focused on cancer CC or

technologies to support such interventions. We developed a novel Personal Health Network (PHN) technology—a scalable, cloud-based, HIPAA-compliant, social network-styled software that includes features to support nurse-led CC for patients undergoing chemotherapy. This study uses mixed methods to explore registered nurses' (RNs) perceptions of the PHN's usefulness for CC; to evaluate their ratings of PHN usability; and to describe and identify predictors of RNs general technology acceptance and use. Two purposive samples of oncology nurses working in diverse California settings were recruited. The first participated in semi-structured interviews to gather PHN feedback, which included watching a video of the PHN features and functions; participating in simulated patient scenarios; and completing a survey. The second sample completed a survey to assess their general technology acceptance and use. Qualitative data were analyzed thematically; survey data were summarized with descriptive statistics and linear regression modeled acceptance, use and usability. RNs in the interview sample ( $n=64$ ) identified ease of use, multiple communication options, accessibility of guidelines and the modifiable patient resource library as helpful PHN features. Integration with electronic health records (EHRs), physician participation, and assuring patient technology support were among suggestions for future implementation. Mean PHN usability were 83.38 ( $SD=11.23$ ) on a scale of 100. On-line survey respondents ( $n=232$ ) were predominantly female (92%);  $>=40$  years (60%); bachelor-prepared (62%); and employed in ambulatory settings (49%). On 0–6 scales, technology acceptance and use scores ranged from 5.14 ( $SD$ ) for performance expectancy (PE; a measure of importance to 3.82 ( $SD=1.6$ ) for price value. PE scores were significantly lower among male RNs; Effort Expectancy (EE) scores were lower among older RNs and higher among bachelor-prepared RNs. The PHN and similar applications hold promise as technologies to support RN-led cancer CC. Critical to successful implementation and sustained use of such platforms are future efforts to support EHR integration and education/support for patients and other health care providers—particularly those with less technology experience. High PE and EE scores highlight, respectively, the importance and usability of technology to oncology; moreover, these findings point to the potential of RNs to lead the development and adaptation of health information technology in oncology care.

**DIFFERENCES BETWEEN CALENDULA VERSUS AQUAPHOR® AND ALOE VERA IN SKIN REACTIONS DUE TO RADIOTHERAPY FOR BREAST CANCER AND HEALING TWO WEEKS AFTER TREATMENT: RESULTS FROM A RANDOMIZED OPEN LABEL TRIAL.** James Kavanagh, RN, MSN, ANP, OCN®, Maine Medical Center, Portland, ME; Kristiina Hyrkas, RN, MSNc, LicNSc, PhD, Maine Medical Center, Portland, ME; Susan Getz, RN, BSN, OCN®, Maine Medical Center, Portland, ME; Julie Wildes, RN, OCN®, Maine Medical Center, Portland, ME; Nellie Bergeron, RN, BSN, OCN®, Maine Medical Center, Portland, ME

Acute radiation skin reactions (ARSRs) are a common side effect in breast cancer patients undergoing radiotherapy (RT). Risk factors for ARSRs such as dose, volume, RT technique, surgery, previous chemotherapy, and patient-related factors such as body mass index (BMI), smoking and previous skin damage have been reported in the literature with conflicting results. The purpose of our study was to compare Calendula versus Aquaphor® and Aloe Vera in an open label randomized trial in women with breast cancer undergoing RT. Several earlier studies have been conducted on different skin care products and essentially all results have called for further investigation. We also learned from the literature that many articles reported anecdotal results favoring one treatment over another but without statistically tested empirical evidence. Nurses conducted skin assessments

weekly during and two weeks after treatment using Radiation Therapy Oncology Group (RTOG) Radiation Morbidity Scoring Criteria. The assessments were documented in the data collection tool. Information was also collected including background, disease related and treatment variables. The study participants (N=150) were enrolled between 4/10/13 – 3/8/16. Our findings were consistent with the results of other studies in that there were no statistically significant differences between the two study groups during the treatment. However, there were consistent notable effects post-treatment related to measured variables. We performed regression analyses and found significant predisposing factors for ARSRs, and also differences between the groups. Non-smoking patients using calendula had significantly less ( $p=0.0165$ ) skin reactions (RTOG $\leq 2$ ) post treatment. Patients who had received chemotherapy prior to RT and were using calendula had significantly less ( $p=.0261$ ) skin reactions (RTOG $\leq 2$ ) post treatment. Also patients who did not use Silvadene (an endpoint in the study) and were using calendula had significantly less ( $p=0.0544$ ) skin reactions (RTOG $\leq 2$ ) post treatment than those using Aquaphor® and Aloe Vera. As with our study and others, we did not find one skin care product to be more effective in preventing or minimizing ARSRs. We conclude that radiation associated skin changes cannot be completely eliminated. It is noted, however, that certain conditions may increase the risk of ARSRs and delay healing. Further studies should be conducted to evaluate patients post-treatment to identify pre- and intra-treatment factors, nursing practices, patient education and self-care behaviors that promote healing and recovery.

#### **EXPERIENCES OF GRIEF AND GRACEFULNESS IN YOUNG WOMEN WITH CANCER.** Elizabeth Croson, RN, University of Virginia, Charlottesville, VA; Jessica Keim-Malpass, PhD, RN, University of Virginia, Charlottesville, VA

Young adult women are faced with compounding difficulties because of their roles as single women, wives, and mothers. Women choosing to begin or grow their families place those decisions on pause while the multitude of decisions surrounding cancer treatment take precedence. Because of this interruption, women who may become infertile due to cancer treatment and those who are balancing parenthood with cancer treatment may begin the process of grieving. The purpose was to gain a unique perspective of young women with cancer (age 20–39), encountering life changes surrounding fertility and parenting, through an analysis of online cancer blogs. A secondary analysis of online narratives was performed using a focused thematic analysis approach, comparing women with cancer ages 20-39 who are mothers prior to diagnosis ( $n = 6$ ) with women who are exploring the possibility of motherhood after diagnosis ( $n = 5$ ). By using line-by-line coding, construction of comparative themes and meanings were guided by the analytic framework of the Kubler-Ross stages of grief. Themes emerged along the grieving trajectory of denial, depression and acceptance. Those themes were maintaining routines and discussing “eggs”, losing motherhood and anticipatory grief, and finding joy moment to moment and the hope of pregnancy. Motherhood and infertility are unique experiences for young women with cancer, but are expressed similarly through the Kubler-Ross stages of grief: denial, depression, and acceptance. Despite experiencing grief, the paucity of examples of anger and bargaining suggest that young women with cancer experience grief gracefully. This analysis revealed some of the inner complexities of grief as experienced by young women with cancer. The stages of grief as explained by Kubler-Ross have been widely criticized as the model has implicated that the stages of grief are to be experienced in a linear fashion: denial, anger, bargaining, depression, and then acceptance in that order. While the experience of grief is complex, and the discussion of the stages of denial, depression and acceptance is simple, this analysis shows that those stages have merit and improve the understanding of the process of grief for young women with cancer.

#### **EARLY INTERVENTION WITH TELEPHONE TRIAGE INFLUENCES PATIENT OUTCOMES.** Ethel Law, RN, ANP-BC, OCN®, Memorial Sloan Kettering Cancer Center, New York, NY; Pam Ginex, EdD, RN, OCN®, Memorial Sloan Kettering Cancer Center, New York, NY; Abigail Baldwin-Medsker, MSN, RN, OCN®, Memorial Sloan Kettering Cancer Center, New York, NY; Kay See Tan, PhD, Memorial Sloan Kettering Cancer Center, New York, NY

The purpose was to evaluate the impact of nursing telephone triage (TT) on patient outcomes related to emergency room visits (ER) for surgical site infections (SSI) after soft tissue sarcoma (STS) resection. Recovery after surgery can be complicated by SSI in 16–56% of cases. SSI is clinically significant with 10% requiring readmission and or re-excision. The incidence of SSI after extremity resection is unknown. ER visits when SSI is identified can be a positive outcome allowing for early intervention and treatment. At this NCI-designated cancer center, outpatient oncology nurses often manage patients remotely by TT. Our standard of nursing practice is to call patients 72 hours post discharge to reinforce SSI prevention. Studies have shown that TT is effective in transitioning patients from hospital to home. However it is unknown whether TT impacts patient outcomes by early intervention for patients with SSI. In this IRB approved retrospective study, we identified 94 patients with extremity STS resections. Their electronic medical records were reviewed for demographic and clinical information, presence, timing, and reasons for TT, and ER within 30 days of surgery. Data were summarized following the guidelines for multivariable logistic regression models. After discharge 78% of patients received TT within 3 days, 15% > 3 days, and 7% never received TT. TT focused on reinforcing wound care teachings and managing SSI symptoms. Commonly reported issues were fluid collection, pain, wound leakage, and redness. 25% of patients had an SSI and a subsequent ER within 30 days. Of the 25% with SSI, all received TT  $\leq 3$  days after surgery ( $p=0.036$ ). In this study we are unable to determine if TT made a direct impact on the SSI related ER. However, this may suggest that the early identification of SSI symptoms via TT can lead to prompt intervention influencing patient outcomes. Outpatient oncology nurses can make an impact on patient outcomes through early intervention via TT. This study is the first step in quantifying that impact and gathering data for practice change. Telephone triage initiated by oncology nurse experts is an innovative, patient centered, and effective tool to improve patient outcomes. Future implication can expand on use of more enhanced technology tool to promote efficient patient care delivery.

#### **PRELIMINARY EVIDENCE OF PRE-THERAPY RELATIONSHIPS BETWEEN COGNITIVE AND EMOTION PROCESSING AND COGNITIVE DIFFICULTIES IN POSTMENOPAUSAL WOMEN WITH BREAST CANCER.** John Merriman, PhD, RN, AOCNS®, University of Pittsburgh School of Nursing, Pittsburgh, PA; Michele Bertocci, PhD, University of Pittsburgh School of Medicine, Pittsburgh, PA; Mary Phillips, MD, MD (Cantab), University of Pittsburgh School of Medicine, Pittsburgh, PA; Christopher Ryan, PhD, University of California, San Francisco School of Medicine, San Francisco, CA; Susan Sereika, PhD, University of Pittsburgh School of Nursing, Pittsburgh, PA; Catherine Bender, PhD, RN, FAAN, University of Pittsburgh School of Nursing, Pittsburgh, PA

Increased cognitive difficulty is reported by ~25% of postmenopausal women before systemic breast cancer therapy. Previous neuroimaging studies report that mood dysregulation (e.g., worry) contributes to cognitive difficulty. No study has described cognitive and emotion processing, which underlies mood regulation, in these women. Therefore, the purposes of

this study were to describe differences between women with and without breast cancer in cognitive and emotion processing at pre-therapy, and to explore associations between these differences and worry. We evaluated nine postmenopausal women after breast cancer surgery (before systemic therapy) and ten postmenopausal healthy controls. Functional magnetic resonance imaging measured blood oxygen level-dependent signal (neural activation). We compared neural activation in patients versus controls during high working-memory-load task performance using the emotional faces n-back (EFNBACK) for 2-back with emotional face distractors versus 2-back with neutral faces or no distractors. SPM-12 extracted cluster-level activation in brain regions of interest for cognitive and emotion processing: bilateral hippocampus; amygdala; striatum; anterior cingulate cortex; and ventrolateral, dorsolateral, and orbitomedial prefrontal cortices. Significance was set at  $p < .001$ , cluster-level corrected. Demographic characteristics and self-reported worry (Three-Item Worry Index) were collected. The groups did not differ in age or education. EFNBACK task performance and neural activation were similar between groups. Trends for increased activation to happy face distractors during task performance for women with breast cancer were observed in the hippocampus (versus no distractor:  $p = .042$ ,  $d = 1.01$ ; neutral distractors:  $p = .030$ ,  $d = 1.09$ ) and amygdala (versus no distractor:  $p = .040$ ,  $d = 1.02$ ; neutral distractors:  $p = .036$ ,  $d = 1.04$ ). Women with breast cancer reported more worry, although this between-group difference was not significant ( $p = .148$ ,  $d = 0.69$ ). Across all participants during happy face distractors, worry scores were positively associated with activation in the striatum ( $\rho = 0.52$ ,  $p = .023$ ). Although we found no significant between-group differences in brain activation or task performance, women with breast cancer experienced greater subcortical response to positive emotional distractions. Large effect sizes were found in hippocampal and amygdala activation, and medium effect sizes were found for differences in worry. Based on these preliminary findings, we hypothesize that subcortical dysfunction occurs before systemic therapy for breast cancer and that positive emotional distractions are particularly salient during this time of greater worry. Interventions that target mood dysregulation by improving cognitive and emotion processing may reduce cognitive difficulties for these women.

**ONCOLOGY NURSES' PERCEPTIONS OF EVIDENCE-BASED PRACTICE GUIDELINES FOR CHEMOTHERAPY SYMPTOM MANAGEMENT.** Sarah C. Reed, MPH, MSW, LCSW, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Janice F. Bell, PhD, MPH, MN, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Robin Whitney, PhD, RN, UCSF Fresno, Fresno, CA; Katherine Kim, PhD, MPH, MBA, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Jill Joseph, MD, PhD, MPH, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA

Oncology nurses support patients undergoing chemotherapy to manage symptoms by triaging and intervening with urgent concerns, providing education to support self-management, and monitoring outcomes. While evidence-based practice (EBP) protocols or guidelines (hereafter guidelines) are increasingly being adopted to support these interventions, little evidence exists to support their efficacy and even less attention has been paid to nurses' related perceptions. We used mixed methods (interviews, surveys, simulated patient scenarios) to describe oncology nurses' experiences with guidelines and evaluate their fidelity to implementation of chemotherapy symptom management guidelines configured in a web-based application. A convenience sample of California oncology nurses ( $n = 64$ ) participated in semi-structured interviews. Par-

ticipants viewed a web-based demonstration of chemotherapy symptom management guidelines and participated in simulated patient scenarios to test fidelity of guideline implementation. Participants were randomly assigned to a nausea/vomiting (NV; a common concern) or anxiety (a less common concern) scenario wherein the interviewer assumed the patient role, providing scripted answers to each component of the guideline. Interviews were transcribed verbatim and analyzed thematically using Dedoose™. The fidelity analysis focused on the proportion of participants selecting the correct protocol and a calculated percent agreement for the individual components of each guideline. Themes emerging from the semi-structured interviews included perceived tension between guidelines and patient-centered care—and, in particular, the importance of tailoring assessment and intervention to meet patient needs and expectations; proscription versus reliance on nursing knowledge/intuition; and the role of guidelines in the balance between efficiency and thoroughness of care. Most participants selected the correct guideline for the scenario presented (NV=100%; anxiety=89%); however, the percent agreement by guideline component varied widely, with a wider range for NV than for anxiety (NV=22%–100%; anxiety=45%–86%). These findings point to importance of gathering and incorporating feedback from front-line nurses in settings where EBP guidelines are implemented. The wider range of agreement by protocol component for NV compared to anxiety confirms prior work, suggesting that nurses are less likely to closely follow guidelines for concerns which they are more familiar. Continuing nursing education may be required specific to patients' concerns addressed by guidelines. More importantly, education is needed to clarify the intent of guidelines in practice—particularly in light of the weak evidence base for their efficacy.

## Poster Sessions

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**PELVIC BONE DOSIMETRIC COMPARISON IN PROSTATE CANCER WITH NODAL IRRADIATION.** Divya Arora, MD, Baylor Scott and White, Temple, TX; Fan Zhang, MS, Baylor Scott and White, Temple, TX; Ryan Schurr, MS, Baylor Scott and White, Temple, TX; Matthew Gestaut, MD, Baylor Scott and White, Temple, TX; Gregory Swanson, MD, Baylor Scott and White, Temple, TX

Pelvic radiation therapy is known to have an effect on bone marrow. Historically, prostate cancer was treated with 3D conformal radiation. Recently, IMRT has been used to minimize toxicity to normal structures. The purpose of this study was to compare dosimetric parameters to the pelvic bones with 3D vs IMRT. We retrospectively reviewed high-intermediate and high risk prostate cancer patients from a single institution ( $n = 42$ ) that received pelvic nodal radiation with IMRT with 54 Gy to the lymphatics. Radiation plans were then created to treat the lymphatics with IMRT to 54 Gy, 50 Gy and 45 Gy, and with 3D. When comparing the mean V10-70, there was a significant difference between the groups. V30-50 were statistically significant different when comparing IMRT 50 vs 54 Gy. We showed that pelvic 3D conformal radiation therapy has a significantly higher volume of dose to the pelvic bone at all dose parameters compared with IMRT. This confirms the dose sparing effect of IMRT on the bone. We are now examining the effect of the higher bone doses on the CBC.

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**ASSESSING VARIATION IN QUALITY OF CARE IN AMBULATORY CHEMOTHERAPY UNITS: A FEASIBILITY STUDY TO DEVELOP AND IMPLEMENT NURSE-SENSITIVE OUTCOME INDICATORS IN THE KSA.** Dena Attallah,

**BSN, SCDP (Higher Diploma in Oncology Nursing, MSc in Nursing, PhD candidate in Health Sciences, University of Southampton, UK**

The quality of patient care is a major universal concern among healthcare managers, policymakers and consumers. In order to benchmark and improve patient outcomes and demonstrate the impact of high-quality care provided by ambulatory chemotherapy services (ACSs), it is thus important to develop patient-reported nurse-sensitive indicators, specific to chemotherapy-related symptoms and experiences of supportive care. This study aimed to explore a range of methodological and feasibility issues that relate to the development and implementation of Nurse-sensitive Outcome (NSOs) indicators and associated tools in the KSA. It also aims to establish whether variability exists in NSOs amongst ambulatory chemotherapy units in the KSA. This descriptive study was designed to investigate the feasibility of using NSO indicators (Patient Reported- Chemotherapy Indicators of Symptoms and Experience [PR-CISE]) and associated tools to assess the variation in Quality of Care in ACSs. It starts with developing and validating the indicator set (PR-SISE and associated tools). Two rounds of cognitive interviews were conducted with ten patients to ensure the clarity, comprehensiveness and appropriateness of a proposed questionnaire (a translated Arabic version of the PR-CISE survey). Then, testing of the survey's recruitment methods. The questionnaire then pilot tested with 30 cancer patients undergoing chemotherapy in a single centre. The pilot study was conducted to evaluate methods and tools for a proposed large-scale study. Moreover, a data collection tool that describes the characteristics of chemotherapy units and provides contextual data (on unit size, staffing, nurse certification) has been tested. Finally, the implementation stage using a small-scale cross-sectional survey accompanied by process evaluation. The study collected data from five ACSs located in the three largest cities in the KSA, using the last version of the PR-CISE questionnaire and the associated survey. The cross-sectional survey confirmed that survey processes were efficient. Also, the Arabic PR-SICE questionnaire was acceptable and can now be used to generate evidence about nurse-sensitive outcomes in ACSs in the KSA and inform future policy and practice. A total of 748 completed questionnaires were returned. Significant differences were observed in the distribution of the severity of symptoms between ACSs in six out of seven studied symptoms. A large-scale survey of NSOs is feasible, acceptable and recommended, and can be fully implemented as planned.

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**USING ELECTRONIC PATIENT SYMPTOM REPORTING TO REDUCE SYMPTOM BURDEN DURING HOSPITALIZATION FOR PREPARATORY CHEMOTHERAPY PRIOR TO HEMATOPOIETIC STEM CELL TRANSPLANT: THE ROLE OF THE ONCOLOGY NURSE.** Elizabeth Bullard, RN, BSN, BSK, The University of North Carolina at Chapel Hill, Chapel Hill, NC; Erin Coffman, MA, The University of North Carolina at Chapel Hill, Chapel Hill, NC; Ashley Bryant, PhD, RN-BC, OCN®, UNC Chapel Hill School of Nursing, Chapel Hill, NC; Joshua Bradley, RN, BSN, The University of North Carolina at Chapel Hill, Chapel Hill, NC; Xianming Tan, BS, The University of North Carolina at Chapel Hill, Chapel Hill, NC; William Wood, MD, The University of North Carolina at Chapel Hill, Chapel Hill, NC

Patients hospitalized for high-dose chemotherapy prior to Hematopoietic Stem Cell Transplantation experience significant symptom burden interfering with quality of life. Symptom burden following transplant is associated with long-term complications and increased mortality. Standardization of patient

reported outcomes (PROs) via electronic surveys may be one solution for assessing onset and duration of symptoms. It offers a way for nurses to identify and communicate clinical changes to the medical team for prompt treatment. A two arm, randomized trial of 51 patients examines the effect of nurses sharing electronic daily surveys containing patient reported symptoms with clinicians (intervention group) vs. patients receiving usual care (control group). The peak symptom burden between both groups, physiological monitoring, and patient/nurse feedback regarding the survey process was analyzed. A total of 51 patients were randomized. Mean age 51.6 Thirty-four (67%) completed the study. co-morbidities at baseline ranged from 2-7. For the intervention group, the peak symptom burden was 10.5 (SD = 6.3), 90% (18 out of 20) patients, while the control group peak symptom burden was 14.9 (SD = 7.6), 86% (12 out of 14) patients. The most frequently reported symptoms were fatigue, decreased appetite, diarrhea, and pain. There was a significant difference in peak symptom burden (p-value = 0.03, Wilcoxon test). At day 7, 97% reported fatigue, 90% had decreased appetite, and 80% had nausea and diarrhea. The two arms were significantly different in Fatigue (p-value = 0.02); Nausea (p-value = 0.003); but not in decreased appetite (p-value = 0.34) or diarrhea (p-value = 0.38). Day 10, 90% reported fatigue, 85% reported decreased appetite, 70% reported pain. The two arms were not significantly different at any of the 3 time points. At day 14, 90% reported fatigue, 90% reported decreased appetite and 60% reported diarrhea. No significant differences were found for reported satisfaction between intervention and control groups. (p-value = 0.28, Chi-square test). With the increasing ubiquity of technology, encouraging patients to be involved in their hospital care via standardized daily symptom reports is an important way for the patient's voice to be heard beyond subjective assessments. With respect to high-dose chemotherapy, oncology nurses can encourage on-going symptom reporting for more timely and effective symptom management, ultimately improving quality of life.

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**OPTIMIZING THE CHRISTIANA CARE BREAST CENTER NURSE NAVIGATION PROGRAM USING A LEAN SIX SIGMA APPROACH.** Darcy Burbage, RN, MSN, AOCN®, CBCN®, Helen F. Graham Cancer Center, Newark, DE; Kathy Coward, RN, BSN, OCN®, Helen F. Graham Cancer Center, Newark, DE; Charlene Marinelli, RN, BSN, OCN®, Helen F. Graham Cancer Center, Newark, DE; E.J. Johnson, PhD, MS, MBA, LSSMBB, Christiana Care Health System, Newark, DE; Joanne Antonio, RN, Helen F. Graham Cancer Center, Newark, DE; Tammy Brown, RN, MSN, OCN®, NEA-BC, Helen F. Graham Cancer Center, Newark, DE

Each year, the Christiana Care Breast Center (CCBC) sees over 650 individuals newly diagnosed with breast cancer. The CCBC implemented the role of the Nurse Navigator (NN) in 1999 to help facilitate a timely diagnosis for patients recommended to have a breast biopsy. This role expanded to include connecting newly diagnosed breast cancer patients with a NN to assist them through the complexities of a breast cancer diagnosis and to follow them throughout the breast cancer continuum. In a chart review, only 42% of patients were linked with a NN at the time of diagnosis which led to delays in care, missed appointments, decreased adherence to the treatment plan, and a reduction in patient satisfaction. In an effort to improve the care delivery of individuals diagnosed with breast cancer, a Lean Six Sigma (LSS) Team was created to optimize the current breast cancer NN program. Utilizing LSS methodology, the project team designed a two phase pilot study to determine if a workflow redesign could support additional staff for the NN program. Phase 1 determined the amount of time CCBC RN's could potentially have to support NN activities by training

medical assistants (MA's) to provide navigation support for patients recommended to have a breast biopsy while Phase 2 determined the impact of CCBC RN's support on NN. In Phase 1, comparison of baseline versus pilot study results revealed a statistically significant increase in the number of medical assistants (MA's) providing navigation support (48.8% to 92.7%;  $p$  value  $<0.001$ ) with no disruption to the departmental workflow or decrease in patient satisfactions. Results demonstrated that one hour per day per RN would now be available for RN's to provide navigation services to individuals newly diagnosed with breast cancer. Phase 2 results confirmed that the CCBC RN was able to provide NN services to patients newly diagnosed with breast cancer for one hour per day. Based on pilot study results, another full-time NN position was approved. In addition, evidenced-based algorithms and clinical pathways were developed to improve the care delivery for patients with breast cancer. Utilizing LSS methodology is an effective approach to improve patient care outcomes by aligning with the triple aim goal of healthcare.

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**PERCEIVED QUALITY OF WORK-LIFE AND RISK FOR COMPASSION FATIGUE AMONG ONCOLOGY NURSES: MIXED-METHODS STUDY.** Jami DeNigris, BA, RN, OCN<sup>®</sup>, Hahnemann University Hospital, Philadelphia, PA; Ellen Giarelli, EdD, RN, CRNP, Drexel University, Philadelphia, PA; Kimberly Carobine, RN, Hahnemann University Hospital, Philadelphia, PA; Lisa Antonelli, BSN, Hahnemann University Hospital, Philadelphia, PA

Nurses can achieve greater empathy through self-understanding and translate this learning to patient care. The identification of both personal and social contributors as well as solutions to work related stress supports the philosophical premises (i.e. conceptual model) that the circumstances that place a nurse at risk for compassion fatigue is socially constructed. The purpose of the study was to examine factors that influenced the nurse's perceived quality of work-life and risk for compassion fatigue (CF). The specific aims of the study were to describe the: 1) Relationship among nurse characteristics and perceived quality of work-life; b) relationship between personal life-stress and perceived quality of work-life; and c) the nurse's beliefs about his/her risk of compassion fatigue. Interventions: Questionnaires and in-depth interviews. The variables were: (a) Nurse characteristics, (b) personal life-stress, and (c) quality of work-life. Data were analyzed descriptively and thematically. Scores on the self-report questionnaires (SRQ) were compared to themes. Personal life stressors, measured by combining the Impact of Events Scale and Life Events Scale, identified powerful or severe impacts on well-being for 30% of nurse respondents in this study. Theoretically placing them at risk for CF. However, qualitative data did not complement the results of the Life Events Scale, conversely, 11 out of 20 nurses described their overall work experiences as "life affirming". Overall, oncology nurses experienced positive reinforcement at work, and they had little concern about individual or organizational effectiveness. Positive experiences off-set the negative and balance the risk for CF.

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**INFLUENCE OF AN 8-WEEK AEROBIC EXERCISE PROGRAM ON DISTRESSING SYMPTOMS FOLLOWING CANCER THERAPY.** Kristin Dickinson, PhD, RN, OCN<sup>®</sup>, NINR/NIH, Bethesda, MD; Alexander Ross, BS, BSN, RN, NINR/NIH, Bethesda, MD; Leorey Saligan, PhD, RN, CRNP, FAAN, NINR/NIH, Bethesda, MD

Prostate cancer is the second leading cause of cancer death in men in the United States. For those men diagnosed with lo-

calized prostate cancer, many treatment options are available including prostatectomy, radiotherapy, and hormone therapy. Each treatment modality yields its own constellation of side effects. Patients treated with EBRT often report bothersome fatigue, lower urinary tract symptoms, bowel irritation, and late sexual dysfunction. Aerobic exercise is recommended to patients during cancer therapy to reduce these symptoms, but questions remain on its benefits to patients. The purpose was to examine the influence of an 8-week aerobic exercise program on the symptom scores at completion of external beam radiation therapy (EBRT) in prostate cancer men. A sample of 53 men with prostate cancer scheduled to receive EBRT were enrolled in a National Institutes of Health Institutional Review Board-approved study (NCT00852111). All enrolled subjects were given the option to participate in an 8-week (one-hour per session, 3 times a week) aerobic exercise program involving treadmill walking targeting a heart rate of  $>65\%$  from resting. Questionnaires were administered at EBRT treatment completion using the Patient Reported Outcomes Measurement Information System-Sleep Disturbance and fatigue forms, American Urological Association urinary symptoms score, and the Sexual Health Inventory for Men. Only 17% of enrolled subjects opted to participate in the 8-week exercise program. At treatment completion, patients who exercised during EBRT had significantly better sexual health (mean 1.5 (SD 1.4),  $p = 0.001$ ) than subjects who did not participate in the exercise program. No difference was observed in fatigue, sleep disturbance, or urinary symptoms. Programmed aerobic exercise during EBRT for localized prostate cancer reduces side effects of the cancer treatment, specifically related to sexual health and functioning. Efforts to increase participation in aerobic exercise programs while receiving cancer therapy is warranted. Validation of findings using a larger sample is necessary. Findings should prompt nurses to educate patients about the importance of exercise during cancer treatment to avoid sexual health toxicities related to treatment.

### 505

**FOX CHASE CANCER CENTER ADVANCE DIRECTIVE EDUCATIONAL EVIDENCE BASED PRACTICE PROJECT.** Lindsay Dougherty, RN, BSN, Fox Chase Cancer Center, Philadelphia, PA; Kaitlin Wilson, RN, BSN, Fox Chase Cancer Center, Philadelphia, PA

In the United States the epidemiologic transition has been made from a medical climate of predominantly infectious disease to one of chronic illness. In 2012 the CDC estimated that 117 million individuals had one or more chronic illnesses. Of these, cancer is one of the most prevalent and costly at an estimated \$157 billion dollars a year. Patients often do not discuss end of life wishes with their physician or family member prior to a traumatic event and it is estimated that only 5%-15% of all patients have completed advance directives despite the Patient Self-Determination Act of 1992. Currently, at Fox Chase Cancer Center (FCCC) advance directive (AD) education is provided in the form a single written packet to every patient upon hospital admission. FCCC prides itself on providing oncology patients with evidence based excellence in care, we recognize the need for improvement in this area of our hospital education system. For the 1.6 million individuals grappling with cancer in the United States, 93% of patient's state that "loss of autonomy" is an essential concern. When considering the magnitude of our patient's fears in combination with the lack of evidence based education we currently provide at FCCC, it's clear that AD's is an area of weakness in our institution. As such we have developed a multi-modal, evidence based method for educating our patients on AD's with the goal of increasing knowledge and self-determination for our patients. To address this disparity, the institution's surgical step down unit (SSDU) implemented a multi-modal

advance directive education protocol; including an AD educational video, as well as three written information packets. The desired outcome was that these oncology patients will develop a better understanding of AD's. Pre-/post- data was collected via an EBP survey. The goal of this EBP project was to promote patient understanding, autonomy, patient empowerment and quality of life. A three-month trial of this process took place on the SSDU from August–October 2016. Data collected from the patient pre and post survey's is currently being analyzed. If the scores from patient surveys begin to show a positive correlation with the use of this tool, the institution will adapt this process throughout the hospital.

**506**  
**DISTANCE CAREGIVERS OF PATIENTS WITH CANCER: EARLY EVIDENCE OF A GROWING NEED.** Sara Douglas, PhD, RN, Case Western Reserve University, Cleveland, OH; Amy Lipson, PhD, Case Western Reserve University, Cleveland, OH; Barbara Daly, PhD, RN, Case Western Reserve University, Cleveland, OH

Distance caregiving is a relatively new phenomenon associated with our mobile society. A new randomized clinical trial focusing on DCGs—those caregivers unable to attend their family member's oncology appointments due to distance—is one of the first to address the needs of this group of caregivers. The purpose was to test the effectiveness of an intervention that uses videoconference technology to join DCGs with their loved one (patient) and oncologist during oncology office visits and provide tailored coaching to DCGs as well. The intervention aims to improve DCG psychological outcomes. Interventions: DCGs are randomly assigned to one of three groups: Arm 1 provides 4 videoconference patient-oncologist-DCG office visit meetings. DCGs also receive (at a separate time) 4 tailored coaching sessions from an advanced practice nurse via videoconferencing. Coaching sessions cover such topics as communication with the healthcare system, communicating with family about care and support, advance care planning, and resource planning for their role as DCG. Arm 2 provides only 4 videoconference patient-oncologist-DCG meetings as described above. No tailored coaching sessions are provided. Arm 3 provides access to a study-designed website with links to information specific to the needs of DCGs. Subjects in this arm can receive 4 videoconference office visit sessions after the study period has ended. 25 DCGs have consented. They are, on average, 50 years old, female (64%), a child of the patient (76%), and new to the role of DCG (76%). At baseline, DCGs had, on average, high distress scores (Mean = 7.1; Maximum score =9, scores >4 indicating distress) and higher anxiety scores (Mean = 52; Normed Mean = 50). DCGs in Arms 1 and 2 have expressed appreciation for information and support and a sense of relief by being able to participate in the videoconference office visits. The use of videoconference technology in the clinical setting to join DCGs with the oncologist and patient during office visits is not only innovative but at the outset, appears to be meeting a need. The additional use of videoconference technology to “coach” DCGs in their role is also well received. This simple technology is allowing DCGs to play a more important role in the care and support of their loved ones with cancer while providing benefits to the DCGs themselves.

**507**  
**BASELINE SYMPTOMS IN 348 VULNERABLE OLDER ADULTS WITH ADVANCED CANCER: FINDINGS FROM A NATIONAL CLINICAL TRIAL.** Marie Flannery, PhD, RN, AOCN®, University of Rochester School of Nursing, Rochester, NY; Yu-ching Chuang, RNMS, University of Rochester School of Nursing,

**Rochester, NY; Lainie Conrow, RNMS, University of Rochester School of Nursing, Rochester, NY**

Older adults represent the majority of individuals diagnosed with cancer yet are consistently underrepresented in clinical research including symptom research. Symptom data is often not from older adults or those with poor performance status and multiple morbidity. For a frail and vulnerable older population with advanced cancer, the aims were to: 1) identify the prevalence rate for symptoms, and 2) report the interference of symptoms on function and lifestyle. Adults > 70 years old with Stage III/IV solid tumors consented to participate in a national clinical trial. Eligibility criteria specified that patients had to have impairment in at least one geriatric domain. All patients completed the MD Anderson Symptom Inventory (MDASI), reporting symptom severity for 13 symptoms and 6 interference items. Descriptive statistics were computed. 348 older adults (M=77 years old, 48% female, 89% white, 63% married, 95% living independently, 20% living alone, mixed solid tumor diagnosis) provided baseline symptom data. All patients had geriatric impairments with compromised physical function (78%) reported most frequently. Symptom prevalence ranged from 87% (fatigue) to 11% (vomiting), with 11 of 13 symptoms reported by >40% of the sample. 94% reported at least 1 symptom, 84% reported >3 symptoms. 72% reported that symptoms interfered with activities of daily living, 71% with work, 69% with walking, 65% with enjoyment of life, 62% with mood, and 46% with relationships. Severity scores were reported more frequently in the low and moderate range for all responses. Baseline findings from this national clinical trial demonstrate that vulnerable older adults report multiple symptoms. However, the symptom severity level is generally low to moderate. Even at a low severity level, interference in activities and enjoyment of life is reported by the majority. Findings reinforce the need for comprehensive symptom assessment in this population and question over reliance on severity reporting alone. As the study progresses, we will be able to track the trajectory of symptoms over time and evaluate the effect of the intervention on symptoms and related interference. Addressing the literature gap, we report symptom prevalence and interference in a large national cohort of the understudied population of older adults with impairments in functioning and advanced cancer.

**508**  
**THE ROLE OF BIOMARKERS IN COLORECTAL CANCER MANAGEMENT.** Susan Fox, BSN, RN, MS, Eli Lilly and Company, Indianapolis, IN; Summer Drummond, BSN, RN CCRC, University of Pittsburgh Medical Center, Pittsburgh, PA; Nino Keshelava, MD, Eli Lilly and Company, Indianapolis, IN; Linda Battiato, MSN, RN, OCN®, Eli Lilly and Company, Indianapolis, IN

Historically, cancer treatments were initiated based on tumor pathology and were specific to the anatomical primary site of the tumor. Evolving medical innovation, however, is developing new treatment pathways to diagnose and treat cancer at a molecular level, based on biomarkers, allowing oncologists to deliver improved patient outcomes. The University of Pittsburgh Medical Center (UPMC) Cancer Center, in collaboration with Eli Lilly and Company, identified a need for oncology nurse education concerning common biomarkers utilized in colorectal cancer (CRC) management. The goals of this project are to provide an educational resource that summarizes common CRC biomarkers for oncology nurses, and to create a reference table of the common CRC biomarkers including reference ranges and implications for ease of use in the clinical setting by all medical staff. Methods for obtaining and selecting data to contribute to this review included evidence based literary review, survey, and advisory board discussions. Review of the literature from

citation databases including MedLine, PubMed and CINAHL identified publications on the role that biomarkers play in CRC management; however, insufficient resources were found containing collective review of biomarkers and the implications for nursing practice. 91% of oncology nurses surveyed at UPMC and Providence Cancer Centers believed that biomarker nursing education is a current unmet need. An Oncology Nursing Advisory Board led by Eli Lilly and Company, including seasoned oncology nurses, administrators, and educators from major U.S. and Canadian cancer centers solidified the significance of this educational opportunity. CRC biomarkers that are widely studied and used for early diagnosis (diagnostic markers), likelihood of disease progression (prognostic markers), or to predict treatment response (predictive markers), and that are used to monitor disease recurrence (surveillance markers) will be reviewed. CRC biomarkers include rat sarcoma viral oncogenes (RAS), v-Raf murine sarcoma viral oncogene homolog B (BRAF), human epidermal growth factor receptor 2 (HER2), phosphatidylinositol-4, 5-bisphosphate 3-kinase, catalytic sub-unit alpha (PI3KCA), microsatellite instability (MSI), and carcinoembryonic antigen (CEA). Innovation: A resource detailing common CRC biomarkers will be provided to positively impact oncology nursing practice. A follow-up evaluation survey will be utilized to evaluate the relevance of colorectal cancer biomarker education within oncology nursing practice.

### 509

#### **DIFFERENCES IN DEPRESSION BETWEEN BREAST CANCER PATIENTS AND PERSONS LIVING WITH HIV. Judy Frain, PhD, RN, Goldfarb School of Nursing at Barnes-Jewish College, St. Louis, MO; Horng-Shiuann Wu, PhD, RN, Goldfarb School of Nursing at Barnes-Jewish College, St. Louis, MO**

Depression is a common co-morbidity for persons living with a chronic illness, such as cancer or Human Immunodeficiency Virus (HIV). Depression has been associated with decreased treatment adherence, resulting in increased morbidity and decreased survival. Despite these negative consequences, depression remains underdiagnosed and undertreated in persons living with chronic illness. This secondary data analysis investigated depressive symptoms in adults living with breast cancer or HIV. This analysis was based on 113 individuals undergoing chemotherapy for breast cancer and 130 adults living with HIV (n = 243). The majority were female (60.2%) and African American (62.7%), the mean age was 49±10.86 years. Depressive symptoms were self-reported using the Center for Epidemiological Studies Depression Scale (CES-D). Descriptive statistics described the prevalence and severity of depressive symptoms. Analysis of covariance (ANCOVA) assessed the relationship between depressive symptoms and the covariates (disease, age, gender, race, education, years since diagnosis). The majority (71%) of the study participants reported some level of depressive symptomatology (21% mild, 23% moderate, and 26% severe). When depression is examined by disease, 62% of breast cancer patients and 39% of HIV patients reported clinically significant depressive symptomatology (CES-D ≥ 16). Substantially more breast cancer participants scored at or above the cut-off for clinically significant depressive symptoms (p < .001). Breast cancer participants reported significantly higher depressive symptomatology than did participants living with HIV (mean = 21.57±11.27 for breast cancer; mean = 15.42±11.52 for HIV) (p < .001). Overall, years since diagnosis, type of chronic disease and education level were all strong predictors of clinically significant depressive symptoms in both groups (all Ps < .05). This study demonstrates high levels of depressive symptoms in individuals living with cancer or HIV. Compared to the general population, the prevalence of depressive symptoms was substantially higher among the study participants. These findings should alert healthcare providers to be proactive in discussing and managing depression, and its

symptoms with their patients. While numerous studies have analyzed depression in the general population and within specific subpopulations, there has been little research comparing different chronic disease populations. This study was among the first to describe the differences in depressive symptoms in breast cancer and HIV, two once-fatal illnesses that are now manageable, chronic diseases.

### 510

#### **INTEGRATIVE REVIEW OF DYSPHAGIA THERAPY: A NURSING PERSPECTIVE. Carly Gerretsen, MSN, FNP-C, RNFA, Erie County Medical Center, Buffalo, NY**

The 5- year survival rate for late stage cancers of the head and neck can be as high as 63%. Primary treatment for these cancers often includes radiation with or without chemotherapy and surgery. Of those patients receiving radiation treatment an estimated 39-64% will suffer from treatment related dysphagia. Dysphagia can lead to aspiration, pneumonia, weight loss, malnutrition, and diminished quality of life. The purpose of this review was to assess commonly used rehabilitation techniques to determine which was most effective at reducing treatment related feeding tube usage, and quality of life changes in adult patients with head and neck cancer. A literature search of PubMed, the Cochrane database, and the Rehabilitation Reference Center was performed, and 9 studies were identified for review. These studies assessed therapies commonly prescribed by speech language pathologists (SLP) including effortful swallow, tongue resistance and strengthening exercises, and gargling. Most studies support early therapy to reduce feeding tube usage and duration, and improve quality of life scores. Although unable to determine if one therapy method provided better outcomes than the others (most studies had the patients perform multiple therapies simultaneously), it was determined that most studies do support early intervention with therapy. Those studies that provided treatment 2 weeks prior to, or at the start of radiation noted less dependence on feeding tubes, and one noted earlier tube removal. All studies reviewed noted a significant and early improvement in QOL outcomes with early swallowing intervention. The results of this study support the need for inter-disciplinary care of the patient receiving radiation therapy. Nurses working with head and neck cancer patients should advocate for an early intervention program, and referral to a SLP. If no SLP is available for consult the nurse should at minimum encourage the patient to continue to eat and swallow frequently throughout the duration of their treatment. Nurses should monitor the patients, and reinforce therapies prescribed by the SLP. Working with the SLP, radiation oncologist, and other providers the nurse can encourage and help develop a plan of care to reduce long term side effects and improve the patient's quality of life.

### 511

#### **INTERVENTIONS USING SOCIAL MEDIA FOR CANCER PREVENTION AND CONTROL: A SYSTEMATIC REVIEW. Claire-Jungyoun Han, PhD, MSN, RN, University of Washington, Dept. of Biomedical Informatics and Medical Education, School of Medicine, Seattle, WA; George Demiris, PhD, FACMI, University of Washington, Dept. of Biomedical Informatics and Medical Education, School of Medicine and Dept. of Biobehavioral Nursing and Health Informatics, School of Nursing, Seattle, WA; Young-Ji Lee, PhD, MS, RN, University of Pittsburgh, Dept. of Health and Community Systems, School of Nursing and Dept. of Biomedical Informatics, School of Medicine, Pittsburgh, PA**

Social media interventions may be an effective strategy to support cancer prevention and management. There are only a few intervention studies exploring social media use for cancer



prevention or cancer care, but given the diverse study designs, methodologies and approaches, it is difficult to determine the effects of social media on cancer prevention and control. Thus, there is a need to systematically review the literature to better understand current social media interventions and the potential of new ones for cancer care. Our aim was to systematically review intervention studies using social media for cancer care. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow. A systematic search using seven electronic databases (Medline via PubMed, Web of Science, CINAHL, Cochrane Library, Scopus, EMBASE, and PsycINFO) was conducted to identify intervention studies using contemporary social media tools with a focus on cancer. Nineteen studies were included (Eleven pilot quasi-experimental studies, seven randomized controlled trials, and one case study). The majority of the studies were conducted for all types of cancer ( $n = 6$ ) or breast cancer specifically ( $n = 5$ ), and in the US, with mostly White participants ( $n = 14$ ). Facebook was the most frequently used platform ( $n = 6$ ); followed by interventions that used more than one tool (e.g., Twitter + Facebook + YouTube) ( $n = 5$ ), and interventions using YouTube or Blogs ( $n = 3$  of each). Most intervention studies ( $n = 9$ ) targeted healthy participants providing education for cancer prevention; other studies targeted patients with cancer ( $n = 7$ ), or both patients with cancer and their family caregivers ( $n = 3$ ). Five studies designed interventions incorporating social support functions. Social media were part of a larger intervention ( $n = 4$ ), or the main component of interventions ( $n = 15$ ). Common outcomes across studies were the usability of social media. Feasibility was also assessed with cost ( $n = 3$ ) and engagement rate ( $n = 5$ ). Intervention group showed significant improvement in cancer knowledge ( $n = 2$ ), cancer survivorship measures (e.g., psychological symptoms,  $n = 5$ ; quality of life,  $n = 3$ ), and health disparities ( $n = 2$ ). Social media tools have the potential to be effective in delivering interventions for cancer prevention and control, and ultimately improving patient care.

### 512 CURRENT STATE OF PROGNOSIS TELLING AND THEIR RESPONSES IN CANCER PATIENTS AT THE END-OF-LIFE (EOL). Yoko Hayashi, MSN, University of Human Environments in Japan, Obu; Chie Ogasawara, PhD, University of Human Environments, Obu; Akiko Kato, PhD, University of Human Environments, Obu; Yuki Asakura, PhD, University of Human Environments, Obu

To improve quality End-of-Life (EOL), communicating regarding prognosis with patient is vital. However, it is not clear that how often prognosis is told to a patient and family in Japan. The purpose of this study was to understand current state of prognosis telling, their responses and actions to the diagnosis in Japanese cancer patients at the EOL in order to develop future interventions. This study was a descriptive study on patients with cancer who were at the EOL and were hospitalized for various reasons. To extract data, 125 patients' medical records were reviewed. Data were manually reviewed and categorized by the researcher. This study was approved by the institutional review board at the University of Human Environments. Four categories were yield from the data: Open Awareness(OA), Incomplete Open Awareness (Incomplete-OA), Closed Awareness (CA), Inappropriate Open Awareness (Inappropriate-OA). Whereas 97% of family members were told the patient's diagnoses, only 57% of patients were told their EOL diagnoses. Propositions of these categories were CA (34%), Incomplete-OA(31%), OP(11.2%) and Inappropriate-OP(11.2%). Mean ages for each category were 75.3 year-old for CA, 67.0 year-old for Incomplete-OA, 71.3 year-old for OA, and 84.7 year-old for Inappropriate-OP. The relationship between the categories and age was tested, and patients with Inappropriate-OP were 9.4 years older than CA ( $p=0.028$ ). Patients with Inappropriate-OP was 17.7 older than Incomplete-

OA ( $p < 0.0001$ ) and 13.4 older than OP ( $p=0.001$ ). The mean age of CA was 8.3 years older than Incomplete-OA ( $p= 0.004$ ). The patients who were told prognosis were less than 60%, and the family members were told prognosis before the patient. Even when patients were told their EOL prognosis, many patients did not discuss about their future plan or care preferences with the family. The older patients with dementia and mental illness were not told their EOL prognosis. Patients with Incomplete-OA were the youngest; and even though they were told their prognosis, they did not talk with the families about death recognition or further action regarding plan. It is essential to provide support for patients who were told their prognosis to clarify goal of care. Understanding of these traits of responses to EOL prognosis can be helpful to develop appropriate care.

### 513 EVIDENCE-BASED PRACTICE COLLABORATION BETWEEN NURSE SCIENTISTS AND NURSE CLINICIANS. Rachel Hirschey, RN, Duke University, Durham, NC; Jessica Meadows, BSN, RN, OCN®, Duke Cancer Center, Durham, NC; Bernadette Labriola, MSN, RN, FNP-C, Duke Cancer Center, Durham, NC; Pauline Myers, MSN, RN, Duke Cancer Center, Durham, NC; Laura Houchin, MSN, RN, AOCNS®, Duke Cancer Center, Durham, NC; Deborah Allen, PhD, RN, CNS, FNP-BC, AOCNP®, Duke Cancer Center, Durham, NC

Evidence-Based Practice (EBP) improves patient outcomes and reduces healthcare costs. Clinicians are experts in identifying patient and practice change needs. Scientists are experts in critiquing evidence quality and conducting research that informs EBP. Thus, the purpose of this project was collaboration between nurse scientists and clinicians to improve patient care through EBP. A 9-session EBP course was organized and facilitated by a PhD prepared nurse clinician. Clinicians identified a needed practice change and relevant question to guide the course (i.e., "Among patients receiving chemotherapy, how does aerobic exercise decrease Cancer Related Fatigue (CRF)?"). Classes were led by nurse scientists, including an exercise oncology researcher, and topics included: PICOT questions, systematic literature review, AGREE and GRADE criteria, research synthesis, and writing EBP recommendations. Program success was evaluated by course participation and uptake of EBP. Twenty-five clinicians, who actively see patients, and 8 scientists with current funding participated. Two EBP projects resulted. First, 2 nurses completed the ONS Incorporating Physical Activity Into Cancer Care Course and developed nurse and patient educational materials including: 1) a nurse assessment CRF and exercise behavior pocket card; and 2) a patient handout about exercising safely during treatment to improve CRF. Second, a nurse practitioner reviewed 25 charts to assess documentation of: 1) asking patients their exercise mode, frequency and duration; and 2) providing an exercise prescription. Results indicated 78% of patients were asked about exercise and 52% were provided a prescription. To improve these numbers, she is implementing: 1) standard exercise assessment (i.e., Godin); 2) collaboration with medical assistants to assess, document and reinforcing teaching; and 3) using standard phrasing for individualized prescriptions that include institution exercise resources. Innovation This project is an exemplar of nurse scientist and clinician collaborations needed to improve patient outcomes. The program did not cost anything and was executed despite demanding and often conflicting schedules of clinicians and researchers.

### 514 SENTINEL LYMPH NODE BIOPSY FOR NODAL STAGING. Mohammad Khan, RN, Chi Baylor St. Luke's Medical Center, Houston, TX

Considerable variability in diagnosis and treatment of melanoma has been observed nationally. The Melanoma Quality

Indicator Development Expert Panel reviewed 26 melanoma metrics in 2007. The NCCN guidelines recommend that patients with invasive melanoma with Breslow depth 1 mm or greater without evidence of clinical adenopathy to have imaging including chest/abdomen/pelvic CT with contrast, brain MRI with contrast, or FDG PET/CT not as a matter of routine work up but only to evaluate specific signs or symptoms. Further, the guidelines recommend discussion and offering of the sentinel lymph node biopsy. The most sensitive staging test for stages I and II melanoma is the sentinel lymph node biopsy. We sought to determine the national performance of several of these measures as well as adherence to NCCN guidelines for work up at CHI Baylor St. Luke's Medical Center. Patients with invasive, non-metastatic melanoma were evaluated in the study. A total of 67 patients with melanoma were identified the hospital cancer registry for the previous year. A total of 22 patients were excluded for analysis for the following reasons: metastatic disease, diagnosis of non-cutaneous melanoma and pre-malignant lesions. Patient demographics variable include sex and age. Disease characteristics examined include Breslow depth, tumor ulceration, mitosis, and melanoma location (head/neck, trunk, upper limb, lower limb, or unknown). Hospital adherence rate for appropriate work up was 89%. Hospital adherence rate for sentinel lymph node biopsy for staging of clinically node-negative patients with intermediate or greater thickness melanoma was 97.8% and adherence for a completion lymph node dissection after a positive SLNB was 100%. Baylor College of Medicine/St. Luke's Medical Center is meeting and exceeding following the National Comprehensive Cancer Network guidelines and surgical standards outlined by Commission on Cancer. Patients with stage I and II melanomas were receiving appropriate work up as well as surgical treatment including sentinel lymph nodes biopsy.

**515**  
**LEARNING NEEDS DIFFERENCES IN WOMEN UNDERGOING ROBOTIC AND OPEN GYNECOLOGIC SURGERIES FOR BENIGN AND CANCEROUS CONDITIONS.** Victoria Loerzel, PhD, RN, OCN®, University of Central Florida, Orlando, FL; Gonul Kurt, PhD, RN, Gulhane Training and Research Hospital, Ankara; Krystal Tavasci, MSN, RN, CNOR, Florida Hospital, Orlando, FL; Sandra Galura, PhD, RN, Florida Hospital, Orlando, FL; Sarfraz Ahmad, PhD, Florida Hospital, Orlando, FL; Robert Holloway, MD, PROF, FACOG, FACS, Florida Hospital, Orlando, FL

Robotic (R) surgery is frequently used to manage complex oncologic/benign gynecologic conditions traditionally performed by laparotomy (L). Favorable outcomes of R-surgery include a reduced hospital-length-of-stay (LOS), less blood loss, and lower levels of post-operative pain compared to L. While R-surgery has gained wide acceptance, little is known regarding patients' learning needs. Currently, it is unknown if patients learning needs are similar for L and R-surgery, or unique for both procedures. The purpose was to compare learning needs of women undergoing R and L gynecologic surgeries for benign/cancerous conditions. Study included 226 gynecologic surgery cases [R=155, L=71], treated at a tertiary care hospital. Instruments included a demographics tool and the Patient Learning Needs Scale (PLNS), which uses 5-point Likert scale to rate the importance of learning needs prior to being discharged from hospital. Descriptive statistics were used to analyze the samples. t-Test determined differences between the groups. R vs. L-treated patients were: Caucasian (87.7% vs. 76.1%), African-American (9.7% vs. 15.5%), Hispanics (11% vs. 4.2%), others (2.6% vs. 8.4%). Patients' mean age was 55-years in both groups, and they spoke English (89% vs. 93%). 90% of cases in both groups had prior surgery and 55% had GYN-cancers. LOS was 1.0±0.5 vs. 3.3±1.0 days for R and L group (p<0.001). At

discharge, R patients had significantly higher identified learning needs overall (179±37 vs. 161±47, p=0.002), specifically related to medication, activities of living, feelings related to condition, treatment/complications, and quality-of-life compared to L group. In both groups, no significant difference observed in the mean scores of PLNS and subscales of the PLNS with having benign/malign gynecologic diseases. Learning needs were greater in R compared to L patients. It is possible that nurses and other healthcare providers perceive R-surgery as less invasive procedure with fewer side effects, shorter LOS, and quicker recovery, therefore deserving less patient post-operative care instruction. However, learning needs exist that require tailoring to current educational needs. Nurses should continue to evaluate patient learning needs throughout the hospitalization and provide education specific to the procedures with an appreciation for the time constraints unique to the outpatient surgery setting in the case of R-surgery. These findings emphasize the need for focused educational approach for women receiving outpatient robotic surgery given the challenges of a shorter LOS.

**516**  
**SYMPTOM MANAGEMENT STRATEGIES FOR BONE PAIN AFTER ADMINISTRATION OF COLONY STIMULATING FACTORS IN ONCOLOGY PATIENTS.** Elizabeth Joy Mclean, BSN, RN, OCN®, Sarasota Memorial Hospital, Sarasota, FL

While necessary to support a patient's immune system post-chemotherapy, colony-stimulating factors (CSF) may also present a complication with acute, intense bone pain. Insufficient relief of this pain can compromise adherence and warrant dose reductions of chemotherapy putting optimal patient outcomes in jeopardy. Current literature is sparse on best practices to alleviate this type of bone pain. A systematic review of scientific literature yielded insufficient and conflicting results and were generally of a low level of scientific rigor (including a cohort study and case studies). Furthermore, there were no studies or reports available other than anecdotal accounts for non-pharmacologic interventions such as ambulation or light stretching to alleviate this bone pain. There were no standards to guide nurses in best practice for managing CSF-induced bone pain. The purpose of this research study was to assess current strategies used by patients experiencing CSF-induced bone pain and their perceptions of the effectiveness of these strategies. A descriptive cross-sectional survey was created to assess use and perceived effectiveness of strategies used to manage post-CSF bone pain. Literature, patient anecdotes, and clinical expertise were used to derive risk factors and strategies as survey options. Qualified participants received at least one injected administration of CSF in hospital within a three-month time period as identified by a pharmacy generated report. Select participants were contacted via postal service. The current response rate is 45% (29/64). Preliminary findings suggest that 28.6% (n=8) of patients experienced post-CSF bone pain within 12-24 hours with a mean severity of 6.0 (SD 2.2; range: 0-10). Although a modest sample, the most effective pharmacologic strategies included Tramadol and narcotics; the most effective non-pharmacologic strategies included heat, stretching and walking. Loratadine use was reported (n=6) however perceived effectiveness was inconsistent (reported scores ranged from 0-10). Full survey findings will be available in Spring 2017 and will be included in the conference presentation. Initial findings suggest value in nurse driven interventions to complement pain management medications. Nurses are well-equipped to support patients with education for these interventions which may mitigate pain and improve treatment adherence. This innovative research study contributes to nursing practice by demonstrating promise in easy to support nursing interventions which appear to be helpful in managing this medication induced pain.

**IMPROVING ANTIEMETIC GUIDELINE ADHERENCE FOR INPATIENT ADULTS RECEIVING HIGHLY EMETOGENIC CHEMOTHERAPY (HEC).** Corrine Mellin, BSN, RN, OCN®, UNC Chapel Hill School of Nursing, Chapel Hill, NC; Mallory Lexa, MSN, BSN, OCN®, UNC Chapel Hill School of Nursing, Chapel Hill, NC; Ashley Bryant, PhD, RN-BC, OCN®, UNC Chapel Hill School of Nursing, Chapel Hill, NC; Susan Mason, MSN, RN, OCN®, UNC Cancer Hospital, Chapel Hill, NC; Deborah Mayer, PhD, RN, AOCN®, FAAN, UNC Chapel Hill School of Nursing, Chapel Hill, NC

Chemotherapy induced nausea and vomiting (CINV) can be prevented in 70–80% of cases, yet despite recently updated guidelines there is evidence that guideline utilization is less than optimal. One widely referenced potential reason for inadequate guideline adherence is provider lack of knowledge of the evidence-based guidelines for CINV and/or how to implement them into practice. Utilizing a retrospective chart analysis, guideline adherence for 86 patients on the inpatient unit this past year receiving highly emetogenic chemotherapy (HEC) was 8.2%. The purpose is to determine knowledge barriers and rate of adherence to antiemetic guidelines for CINV in hospitalized adults receiving HEC. A quality improvement project utilizing the PDSA model was implemented to improve adherence by improving knowledge of the guidelines to decrease rates of CINV. Baseline knowledge levels of CINV management and evidence-based guidelines were collected in an anonymous emailed survey. The intervention included an in-person powerpoint education session. These sessions were provided to nurses (n=82) and advanced practice providers (APP) (n=6) and were developed utilizing the evidence-based symptom management guidelines, national resources, and focused on areas of weakness in the surveys. Eight education days were provided over one month, during day and night shifts, with two sessions offered each day. For those nurses and one APP unable to attend, a recording of the powerpoint was provided. A post-intervention anonymous survey was emailed to all nurses and APP's to assess improvement in knowledge levels and guideline utilization. Prior to the education, 60 nurses participated in the survey scoring an average of 57.3%, and five advanced practice providers participated scoring an average of 60.8%. The education sessions captured 68 of the 82 nurses on the unit (83%). One education session was provided to the APP's, which captured five out of the six. Post-education surveys showed improved results; nurses scored an average of 66.1% and APP's an average of 77%. These education sessions successfully engaged nurses and APP's in improving their knowledge to improve patient outcomes related to CINV. Next steps will be to continue education on the unit, sustain adherence to antiemetic guidelines, and expand education to all oncology providers. Lastly, a retrospective chart analysis of patients receiving HEC will be performed to determine CINV rates post-education.

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**EXAMINING LATE AND LONG-TERM TREATMENT EFFECTS IN HEAD AND NECK CANCER SURVIVORS.** Marci Nilsen, PhD, RN, University of Pittsburgh, School of Nursing, Pittsburgh, PA; Marci Nilsen, PhD, RN, University of Pittsburgh, School of Medicine, Pittsburgh, PA; Anna Dainauski, SN, University of Pittsburgh, School of Nursing, Pittsburgh, PA; Tamara Wasserman-Wincko, MS, CCC-SLP, UPMC, Department of Otolaryngology, Pittsburgh, PA; Jonas Johnson, MD, University of Pittsburgh, School of Medicine, Pittsburgh, PA

Achieving high-quality cancer survivorship care is a national priority. While short-term quality of life challenges and side effects of treatment for head and neck cancer are well described

in the literature, little is known about the true cost of treatment for long-term survivor's health and well-being. The purpose of this study was to assess the presence of late and long-term treatment effects in head and neck cancer survivors. As part of a multidisciplinary head and neck cancer survivorship clinic, we asked patients to complete patient-reported outcome questionnaires related to quality of life, depression and anxiety symptoms, and swallowing. The questionnaires administered were: University of Washington Quality of Life Questionnaire (UWQOL), Patient Health Questionnaire (PHQ-9), Generalized Anxiety Disorder (GAD-7), and Eating Assessment Tool (EAT-10), respectively. In addition, a nurse-led assessment of late and long-term treatment effects was conducted. Descriptive statistics were used to summarize the demographic and clinical characteristics of the sample. A composite score (range 0–100) was computed for the UWQOL with lower scores indicating greater dysfunction. Total scale scores were computed for the PHQ-9 (range 0–27), GAD-7 (range 0–21), and EAT-10 (0–40), lower scores indicating less severity in symptoms. To date, we have recruited 28 patients who are on average 7.7 years (SD=7.3) post-treatment for cancer of the oral cavity, pharynx, or larynx. Patients were predominately male (70%) with a mean age of 66.5 years (SD=16.2). The mean composite score for the UWQOL was 74.4±16.5. Patients reported minimal depression and anxiety symptoms: 2.5±4.7 (PHQ-9) and 1.2±3.3 (GAD-7) respectively. The mean EAT-10 score was 15.0±13.7. It is important to note that 72% of patients scored ≥3, which indicates that they may not be swallowing efficiently and safely. The most common late and long-term treatment effects noted by patients were: xerostomia, dysphagia, and altered taste. While these results are preliminary, they highlight the prevalence of late and long-term treatment effects in head and neck cancer survivors. As we accrue a larger more robust sample, we will have a more precise picture of the issues faced by head and neck cancer survivors across their survivorship trajectory. A more detailed understanding of these issues will help providers identify care priorities and targets for intervention, leading to the establishment of best practice standards for survivorship care.

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**FINDING THEIR PLACE: THE EXPERIENCE OF YOUNG ADULTS WITH BREAST CANCER.** Carolyn Phillips, MSN, RN, ACNP-BC, AOCNP®, University of Texas at Austin School of Nursing, Austin, TX; Carolyn Phillips, MSN, RN, ACNP-BC, AOCNP®, University of Texas at Austin, Austin, TX; Ashley Henneghan, RN, MSN, BSN, University of Texas at Austin, Austin, TX

Breast cancer most often occurs in middle to late adulthood, but can affect women at any age. Adolescent and young adult (AYA) breast cancer patients are at a distinct developmental stage compared to survivors in their 30's, 40's and 50's+. and likely have unique needs. Little is known about the lived experience for young women, between the ages of 20–30. The purpose of this study was to describe the experience of women diagnosed and treated for breast cancer in their 20's. A qualitative collective case study approach was utilized. Participants were recruited from an ongoing observational study of breast cancer survivors 6 months to 10 years post chemotherapy completion. Those who met the inclusion criteria (< 30 years old) and had given permission to be contacted about future studies were invited and consented before participating in semi-structured interviews. Each interview was audio recorded and independently transcribed. Interview data were coded separately by each of the authors and the analyzed using a qualitative content analysis to identify emerging categories from the data. The three women who participated ranged in age from 24–28, and all had diagnoses of stage III, inter-ductal carcinoma. Seven categories emerged from the interviews: Maintaining Normalcy,

Premature Family Planning, Impact on Future Planning and Outlook, Worry, Differences from Older Women with Breast Cancer, Cognitive Deficits, and Impact on Relationships. In the literature, “young breast cancer survivor” can mean any women under the age of 40–50. It was hypothesized that women in their 20’s may have different experiences with breast cancer treatment than those in their 30’s, 40’s, and 50’s. Women in this study described needs that overlap with both AYA and general breast cancer populations including difficulties when confronted with fertility, family planning, and renegotiating relationships. The findings from this study highlight that more information is necessary to best care for this population. Currently, little is known about the lived experience for young women, between the ages of 20–30. The information about their experience and unique needs can help direct future research.

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**THE IMPORTANCE OF VENOUS THROMBOEMBOLISM MANAGEMENT IN THE ONCOLOGY POPULATION. Maura Price, MSN, RN, OCN®, Lehigh Valley Health Network, Allentown, PA**

Venous thromboembolism (VTE) is defined as the development of a thrombus in the form of a deep vein thrombosis (DVT), a pulmonary embolism (PE), or a combination thereof. Due to the hypercoagulable state that occurs with malignancy, oncology patients are four to seven times more likely to develop VTE than those in the general population. VTE coupled with thrombocytopenia, a common toxicity experienced by oncology patients undergoing treatment with chemotherapy and/or radiation, can make VTE management challenging and raise concerns about spontaneous bleeding. Outweighing the risks of further bleeding during anticoagulant administration versus the risks of VTE recurrence during anticoagulant holds is essential. Common questions at Lehigh Valley Health Network (LVHN) included: When is it safe to administer anticoagulants to a thrombocytopenic patient? At what platelet count level should anticoagulants be administered versus held for patient safety? The purpose was to fill a gap in knowledge regarding proper anticoagulant dosing and administration in the thrombocytopenic oncology patient. A literature search was completed and national guidelines for VTE management were reviewed and compared. After presenting this data to LVHN’s cancer committee and oncologists, a standard parameter for anticoagulant holds in the thrombocytopenic oncology patient was established. Unless otherwise contraindicated, anticoagulants can be safely administered to oncology patients with a platelet count of 50,000/ml or higher. Education on VTE management in the oncology population was assigned to all inpatient oncology nurses at LVHN via our online learning system. Nurses have voiced their appreciation for the education, review of current guidelines, and establishment of a standard parameter for anticoagulation holds, thus reducing confusion over when to safely administer versus hold anticoagulants in the setting of thrombocytopenia. Proper VTE management in the oncology population can: 1.) lead to decreased morbidity and mortality, therefore reducing overall costs associated with VTE in this population, 2.) positively impact a patient’s quality of life and lessen the chance of future VTE recurrences, and 3.) decrease the overall incidence of VTE in the oncology population. Assessment and evaluation of VTE risk in oncology patients is necessary. Plans to implement a validated VTE risk assessment tool into EPIC/Beacon, our electronic medical record (EMR), are underway at LVHN.

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**TRANSITIONS OF CARE: BRIDGE BETWEEN THE OUTPATIENT AND INPATIENT UNITS. Jeremy Schwartz, BSN, Hahnemann University Hospital, Philadelphia, PA; Jami**

**DeNigris, BA, RN, OCN®, Hahnemann University Hospital, Philadelphia, PA; Melissa Arce, RN, Drexel University, Philadelphia, PA; Sarah Lees, RN, Rittenhouse Hematology, Philadelphia, PA; Colleen MacDonald, RN, Drexel University, Philadelphia, PA; Lisa Antonelli, BSN, Drexel University, Philadelphia, PA**

Our oncology patients transitioning from our 47 bed inpatient unit to our two outpatient offices has been challenging at times, due to the complexity of their care. We have identified gaps in their care and felt that utilizing a multidisciplinary team approach, could ease their transition into the outpatient office. Patient satisfaction has become one of the leading quality indicators for hospitals. Transition of care questions from the HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey began to count towards our CMS (center for medicare services) value based purchasing reimbursement for hospitals. These scores were used to determine if our interventions would be successful. The 47 bed inpatient unit partnered with the two outpatient offices to ensure a seamless transition from inpatient to outpatient. Oncology patient’s care is extremely complex and often overwhelming for the patients and families. We decided to focus on the transition of care for these patients and used our transition of care survey questions scores as our outcome. Ensuring a comprehensive transition of care from inpatient to outpatient is vital. The inpatient unit has daily TEMPO (team engagement to manage patient outcomes) rounds every day and highlight patients who are ready for discharge or approaching discharge within a day. Our oncology patients that fall into this category, the leadership team will round and have a transition of care conversation with them. Our conversation focuses on the discharge and their transition to the outpatient office. We ensure their healthcare preferences are met and that they have the tools and information to manage their health once they are home. We have communication between the inpatient nurses and the outpatient nurses. The outpatient nurse for example might assist with follow up authorizations for medications. The outpatient nurses have also come over to just introduce themselves to patients who are more anxious about their treatment. Evaluation: Care transition score Third Quarter:31.2 Fourth Quarter:65.9. Utilizing a multidisciplinary approach and bridging the gap between the outpatient and inpatient unit has made a positive impact on our transition of care scores. Due to the complexity of the oncology patient, bridging the teams together is helping the patients manage their care and helping to ensure their healthcare preferences are met.

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**SINGLE INSTITUTION EXPERIENCE: COMPARISON OF HEPARIN VERSUS URSODIOL FOR PREVENTION OF VOD. Leigh Shinn, RN, BSN, CCRC, Stanford University, Palo Alto, CA; Lisa Pinner, RN, MSN, APON®, BMTCN®, Lucille Packard Children’s Hospital Stanford, Palo Alto, CA; Julianna Kula, PharmD, BCOP, Lucile Packard Children’s Hospital Stanford, Palo Alto, CA; Prianka Kumar, RN, MS, Stanford University, Palo Alto, CA; Rajni Agarwal, MD, Stanford University, Palo Alto, CA; Ken Weinberg, MD, Stanford University, Palo Alto, CA**

Veno-occlusive disease (VOD) is a serious and potentially lethal complication of hematopoietic stem cell transplantation (HSCT). Most centers use either low dose heparin or ursodiol prophylaxis to prevent VOD. In 2014, our center changed the VOD prophylaxis from heparin to ursodiol. The purpose of this analysis is to compare incidence of VOD following the change in prophylaxis to ursodiol, as compared to historical controls who received heparin. This retrospective review was conducted on 161 patients who received HSCT at LPCH from January 2012

through June 2016. 13 patients were excluded; 8 for receiving a second HSCT within 100 days of the first HSCT, and 5 for HSCT following MIBG therapy of neuroblastoma. Patients received either continuous heparin infusion 4mg/kg/hour, ursodiol 6mg/kg BID, or both for VOD prophylaxis. All treatment started on the day of admission prior to conditioning, and continued until D+21 following HSCT. Patients were evaluated with the modified Seattle criteria for the diagnosis of VOD. 62 patients received heparin, 52 received ursodiol; and 34 received both. 34 patients who received both heparin and ursodiol were excluded leaving 114 evaluable patients. 3 (4.84%) out of 62 patients on heparin developed VOD: 2 mild and 1 severe, 9 (17.31%) out of 52 patients on ursodiol developed VOD: 3 mild, 1 moderate, 5 severe. Odds ratio of developing VOD while receiving ursodiol compared to receiving heparin was 4.12 (CI 1.06-16.11) with a p value of 0.03. Severe VOD was more likely with ursodiol (9.6%) compared to heparin (1.6%) (2-sided Fisher exact p=0.09). Within our institution, the incidence of VOD in patients who received ursodiol was significantly higher than in those who received heparin. Use of ursodiol was more likely to be associated with severe VOD. Ursodiol appears to be inferior to heparin in prevention of VOD in children undergoing HSCT.

### 523 TRANSITION CARE ROOM: FACILITATING PATIENT FLOW AND DECREASING LENGTH OF STAY. Martie Steinfeld, MSN, RN, BMTCN®, Vanderbilt University Medical Center, Nashville, TN; Anna Liza Rodriguez, MSN, MHA, RN, OCN®, Vanderbilt University Medical Center, Nashville, TN

Hematology/Oncology patients requiring inpatient chemotherapy often wait hours for bed placement, leading to delayed start times of the patient's prescribed regimen, consequently increasing length of stay (LOS), and results to poor HCAHPS ratings regarding the admission and discharge process. The goals of the transition care room (TCR) include early initiation of therapy for patients waiting for bed availability and placement; and increased patient flow into and out of the hospital. Using Lean methodology to review a three-month history of patient admission and discharge times in relation to chemotherapy start and stop times identified opportunities. Metrics measured included admission time to chemotherapy start time and chemotherapy stop time in relation to time of discharge. Additionally, the LOS for the subset of patients identified for this test of change were compared to a control group of the same patient population. A room was designated as the TCR with 2 recliners. Patients were assigned based on a predetermined criteria, and treatment initiated prior to bed assignment. Patients were eventually transitioned to the first available room with therapy initiated. Patient satisfaction was measured using a Likert survey to rate their satisfaction with the admission process for their scheduled chemotherapy before and after using the TCR. Average time from admission to start of chemotherapy prior to TCR was 12 hours. Additionally, the average time from completion of chemotherapy to discharge was 9 hours. Baseline patient satisfaction is poor with an average score of 2 on a scale of 1 to 5. Utilization of the TCR decreased the admission to chemotherapy start time to approximately 4 hours and reduced the time from chemotherapy completion to discharge to approximately 6 hours. The overall LOS for this patient population was decreased by almost 0.5 day. Patient satisfaction also improved to an average score of 4. During this test of change, the TCR allowed for the improvement in patient flow both into and out of the hospital, decreased LOS and increased patient satisfaction. Additional recommendations for the use of the transition care lounge is ongoing. A dedicated TCR in contrast to a traditional discharge lounge is an innovative way to aggressively manage bed capacity, throughput, and LOS while expediting initiation of care.

### 524 ONCOLOGY PATIENT SATISFACTION: IMPLEMENTATION OF AN ONCOLOGY-SPECIFIC OUTPATIENT SATISFACTION SURVEY. Amber Vrana, RN, MSN, OCN®, HonorHealth, Scottsdale, AZ; Marina Davey, RN, BSN, OCN®, HonorHealth, Scottsdale, AZ

Increased patient satisfaction is noted to have positive implications on overall patient outcomes and adherence to recommended treatments. The ability to measure patient satisfaction provides the opportunity to identify and remedy shortfalls in patient care needs and processes. An outpatient oncology clinic is unique due to the complexity of care and treatment the patient must navigate across their cancer care continuum. Many instruments have been developed to measure patient satisfaction, however, these instruments vary in length, content and approach to scaling patient responses. It is vital to measure patient satisfaction utilizing an instrument that can provide relevant feedback to improve patient care and clinic processes. The purpose of this project is to implement a patient satisfaction survey, in the setting of a nurse-driven shared governance model, with the goal of reviewing survey data to identify and improve clinical practice in an outpatient oncology clinic. A literature review was completed to identify a patient satisfaction survey relevant to both oncology and outpatient settings. Key aspects of each survey were reviewed; they included length of survey, reliability, validity, relevancy, accessibility, affordability and ability to identify areas for improvement. An instrument was chosen that met specific clinic needs and permission was obtained from the author of the survey for use. Methods and timing of survey distribution were decided upon and implemented. Survey data is compiled and analyzed on a quarterly basis by nursing staff. Through the guidance of the shared governance council, areas in need of process improvement will be identified and acted upon with the goal of improving patient care and outcomes. This process for patient satisfaction survey implementation provides nursing with an opportunity to maintain real-time evaluation of patient needs, in collaboration with a shared governance council, for process improvement projects.

### 525 NURSING ASSISTANTS' SAFE HANDLING OF EXCRETA CONTAMINATED WITH ANTINEOPLASTIC DRUGS. AnnMarie Walton, PhD, MPH, RN, OCN®, CHES, University of North Carolina at Chapel Hill School of Nursing, Chapel Hill, NC; Shawn Kneipp, PhD, RN, ANP-BC, APHN-BC, FAANP, University of North Carolina at Chapel Hill School of Nursing, Chapel Hill, NC; Laura Linnan, ScD, University of North Carolina at Chapel Hill Gillings School of Global Public Health, Chapel Hill, NC; Bonnie Rogers, RN, DrPH, COHN-S, FAAN, University of North Carolina at Chapel Hill Gillings School of Global Public Health, Chapel Hill, NC

Working with or near antineoplastic drugs (ADs) may cause skin rashes, infertility, miscarriage, birth defects and potentially leukemia or other forms of cancer. Despite recommendations by the National Institute of Occupational Safety and Health (NIOSH) for protection from exposure to ADs, there are no compliance mandates, nor standardized education for Nursing Assistants (NAs) on safe handling of ADs. In light of their exposure potential, the risk of adverse reproductive outcomes and cancer posed by ADs, and the limited education and training of NAs, a study to explore factors that influence the protective behaviors of NAs coming into contact with ADs was needed. The objective of this descriptive mixed-methods study was to determine the feasibility of observing and interviewing NAs about safe handling of excreta contaminated with ADs as well as to test adapted measures developed for use with

nurses. All NAs on an inpatient hematology oncology unit at a large NCI designated comprehensive cancer center were invited to participate. Recruitment and retention were high with 84% recruitment (27/32) and 100% retention. NAs were observed for 2 hours of a routine shift (with verbal permission of patients to observe the NA in their room) and completed a verbally administered questionnaire and interview on non-work time after the observation. Data collection has just ended. Descriptive statistics will be run on all demographic variables, as well as factors that influence protective behavior (knowledge, perceived risk of AD exposure, workplace safety climate, workload and self-efficacy of the NAs); self-reported and observed behaviors will be compared and reported in aggregate. Qualitative data will give feedback on the instruments, and help us to understand barriers to and facilitators of Personal Protective Equipment (PPE) use for NAs as well as gaps in their knowledge and training around safe handling of AD contaminated excreta. Nurses are involved in the education, training and management of NAs in the inpatient oncology setting and the results of this study will inform future research, education and practice centered on safe handling of AD contaminated excreta for NAs with the goal of minimizing their exposures to known carcinogens at work.

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**A CHANGE IN PRACTICE: IMPLEMENTING EVIDENCE-BASED EDUCATION FOR OUTPATIENT CHEMOTHERAPY PATIENTS.** Catherine White, BSN, CMSRN, Landstuhl Regional Medical Center, Landstuhl, AE; Amy Chai, RN, Landstuhl Regional Medical Center, Landstuhl, AE; Megan Weimer, BSN, RN, Landstuhl Regional Medical Center, Landstuhl, AE

Neutropenic fever mortality rate ranges from 2-21% in cancer patients. Evidence suggests that patients who do not receive adequate chemotherapy education have increased anxiety and assume that the “worst case scenario” will happen to them during treatment. Patients who receive quality education feel they have adequate support from their treatment team, experience less anxiety and have improved quality of life. Our clinic provides the only American oncology services in Europe, and many of our patients travel several hours for treatment. Therefore, it is critical they fully understand their treatment regimens and potential side effects, and can recognize warning signs of neutropenic fever. The purpose of this project is to determine if patient-centered education methods compared to current clinic teaching standards improve patient understanding and demonstration of self-care during chemotherapy treatment in outpatient oncology patients receiving first-time chemotherapy. We used the Iowa model to guide this project. After reviewing and evaluating the literature, we implemented the following best practices: educating the patient one day prior to the first chemotherapy treatment (when possible) instead of educating and treating on the same day, providing education in a separate, quiet room instead of in the treatment room, and creating a standardized, evidence-based education “script” or checklist to ensure all nurses are consistently and thoroughly teaching patients the same material. Nursing staff verify patient understanding of the education with a follow up phone call 48–72 hours after the initial dose of chemotherapy. Additionally, the clinic fever guidelines information sheet was updated. The follow-up phone call will evaluate patient understanding of chemotherapy education and confidence in caring for themselves at home. Seven new patients started chemotherapy since implementing these interventions. One patient used the fever guidelines sheet and went to the hospital when his temperature was elevated (101F). All patients appreciated the follow up call and felt confident in caring for themselves at home. Chemotherapy education is not new to the field of oncology nursing; however, the small American patient population receiving treatment overseas lacks access

to necessary support from family, cancer support groups, and other outlets that traditionally serve as resources for additional questions and clarification on chemotherapy education. This project aims to bridge this resource gap.

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**IMPLEMENTING A SPECIALIST PROSTATE CANCER NURSING SERVICE: A MULTIMETHOD INVESTIGATION OF FACTORS INFLUENCING PROGRAM OUTCOMES.**

Patsy Yates, PhD, FAAN, FACN, Queensland University of Technology, Kelvin Grove; Wendy Liu, PhD, Queensland University of Technology, Kelvin Grove; Robyn Cockerell, BA, Queensland University of Technology, Kelvin Grove

The increasing complexity of cancer treatment has meant that care coordination and provision of specialised information and support have become increasingly important nursing functions. Significant variation exists in how such functions are implemented in practice and there is limited information to guide development and implementation of such nursing models. The aim of this study was to evaluate a new prostate cancer nursing service implemented in 14 metropolitan and rural settings in Australia to improve patient and health service outcomes. The evaluation focused on understanding critical functions of the nursing role and factors influencing implementation of the program. A multimethod approach was used involving interviews and analysis of health service data. In-depth individual interviews were conducted with 11 specialist prostate cancer, 9 service managers, and 31 multidisciplinary team members. Two researchers undertook thematic analyses of verbatim transcripts to reach agreement on key themes. Service data for a total of 12808 patient contacts across the 14 sites was also analysed. Key themes reflected that core functions of the nursing role included care coordination, assessment, management and referral, and provision of specialised support. Strategies used to ensure the nursing service reached men with greatest need or at higher risk of poorer outcomes included identifying, assessing, and prioritising patients with urgent side effects, complex needs, issues or complications, advocating for the man and involving the multidisciplinary team, and proactively responding to identified clinical and social risk factors. A range of system and service related factors influenced the success of the service, including positive relationships with the multidisciplinary team, physical and functional integration of the nurse within the service, the presence of integrated service networks, role clarity and effective clinical governance, adequate facilities and resources to support the role, and long term plans for sustainability. Opportunities for extending the impact of the role included building community and professional engagement and supporting innovative service delivery models. Specialist oncology nurses who have dedicated coordination and supportive care functions play an important role in contemporary health care environments. Optimizing outcomes from such services requires a range of supporting systems, including interdisciplinary collaboration, effective clinical governance, clear service networks and pathways, and adequate professional supports and resources.

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**EXPLORE THE DIFFERENCE OF REPORTING DELIRIUM SYMPTOM BETWEEN PROFESSIONALS AND FAMILY CAREGIVERS IN ADVANCED CANCER PATIENTS.** Ying Ying Yeu, MSN, NP, KF Sun Yat-Sen Cancer Center, Taipei

Delirium is a common complication, a group of neuropsychiatric syndromes characterized by acute and fluctuated episodes with impaired attention, awareness, consciousness and cognition. For advanced cancer patients, delirium is a major prognostic factor of mortality. Because of the insidious, subtle, transient or interchangeable nature of delirium, detection and diagnosis of delirium remains a challenging task. Clinical observations and

symptom reports were the key steps to a successful management of delirium. The main purpose of the study was to explore the symptom report between health care professionals and family caregivers of hospitalized advanced cancer patients with delirium, and to investigate the relationship between delirium symptoms and cancer, medical factor, demographics. This is a retrospective case-control study base on reviewing medical records of advanced cancer patients at one cancer center in Taiwan between January 2007 and May 2015. 241 patients were identified through a computerized search of discharge diagnoses using the ICD 9 code of delirium and cancer diagnoses. The results indicated that persisting delirium, brain metastasis, the use of antibiotics, family caregiver report symptom of disorientation, and health care workers reported symptom of emotional lability were strongly correlated to mortality. Both professionals and family caregivers hold vital roles in the process of caring cancer patients with delirium. This cohort study result supports the hypothesis that family hold an important role in caring delirious patient, not only the family knows patient but understands and notices subtle changes of emotion, physical and mental state. Partnering with family will draw improvement on recognition, promote early diagnosis of delirium, and provide proactive and quality care to cancer patients.

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**NURSE-DRIVEN PALLIATIVE CARE SCREENINGS FOR MALIGNANT HEMATOLOGY AND PERIPHERAL STEM CELL TRANSPLANT PATIENTS. Eric Zack, DNP, RN, ACNP-BC, AOCN®, BMTCN®, Rush University Medical Center, Chicago, IL**

Staff nurses at an urban academic medical center identified a need for more involvement with palliative care (PC) on a malignant hematology/peripheral stem cell transplant (PSCT) unit. We implemented an evidence-based, electronic, and comprehensive nurse-driven PC screening tool that was utilized upon admission, on a weekly basis, and as needed whenever significant changes occurred. The goal was to increase patient access to palliative care and to improve patient care in a holistic manner. This project included education, unit-based nursing practice changes, referrals to PC, and official PC consults for appropriate patients. Ultimately, PC inquiries and official consults increased as a result. Previously, our medical intensive care unit had developed a nursing screening tool to increase PC consults to better meet the needs of their critically ill patients and their families. This tool originated from a journal club discussion that evolved into a patient distress scale and then to its current screening form. PC experts guided an interprofessional effort to develop the criteria that would trigger a need for their specialized services. Our unit then adapted this tool by refining the criteria specific to the malignant hematology/oncology/PSCT population. Screenings were performed by nurses at designated frequencies; and those screenings that met defined criteria would initiate a PC inquiry. The PC service would then review the patient's chart and discuss a possible consult opportunity with the attending physician. Once consulted, the PC service began addressing the identified needs such as uncontrolled symptoms, pain management, and/or initiating end of life conversations. Staff nurses reported feeling empowered by becoming active participants in screening patients for PC. Project implementation began in June 2015 and is ongoing. Chart audits measured compliance and impact. Evaluation criteria included: 1) patients who were screened by staff RNs, 2) PC screenings that met defined criteria, 3) PC service notification, 4) official PC consults, and 5) a comparison of positive PC screens to official PC consults. This was the first time a PC screening tool was found to be operationalized for malignant hematology/oncology patients undergoing PSCT, typically designed for curative intent. This screening tool and our experience serve as an efficacious model that can be adopted by other health care institutions to improve patient care while also empowering staff nurses in the PC screening process.

## Industry-Supported Poster Sessions

**IS-25**  
**THE RELEVANCE OF A REFERRAL TO A SPEECH-LANGUAGE PATHOLOGIST FOR THE TREATMENT OF CANCER TREATMENT RELATED COGNITIVE IMPAIRMENT. Connie Carson, PhD, SLP-CCC, Carson Consulting, Littleton, CO**

For decades, people going through cancer treatment apologized for, complained of, and joked about mental cloudiness. Patients often call this “chemobrain”; the literature refers to it as “Cancer Treatment Related Cognitive Impairment (CTRCI). Most define it as having trouble remembering details, concentrating, finishing tasks, multi-tasking, remembering words, being organized, and maintaining daily calendars events. These vague and frustrating changes are real, not imagined, and can affect everyday life for as many as 75% of all cancer survivors. If these symptoms were noted after a mild traumatic brain injury or a stroke, the patient would be routinely referred to a speech-language pathologist. Many oncology professionals are unaware that cognitive dysfunction is one of the main areas of expertise for rehabilitation specialists. They can help with cognitive training exercises, skills training, compensatory strategies, and identify the best computer programs that may be beneficial. An evidence-based review of the literature including hundreds of articles and thousands of cancer patients explored the effectiveness of individual and group cognitive training, Qigong, Vitamin E, pharmacologic approaches, exercise, and meditation. While some approaches, such as exercise, looked promising, the review did not establish their effectiveness; only cognitive training was deemed “likely to be effective” based on the studies included in the review. This eposter will discuss the relevance of a referral for speech therapy following CTRCI and provide practical therapeutic suggestions to help this patient population. Acknowledging the importance of exercise, complimentary copies of the author's book, *Fitness for Cancer Patients*, will also be distributed.

**IS-26**  
**DELIVERY OF TECHNOLOGY-ENABLED NURSE-LED CARE COORDINATION FOR PATIENTS RECEIVING CANCER CHEMOTHERAPY TREATMENT: DESCRIBING THE NURSE'S ROLE. Andra Davis, PhD, MN, RN, Washington State University, Vancouver, WA; Janice F. Bell, PhD, MPH, MN, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Sarah C. Reed, MPH, MSW, LCSW, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Dawn Stacey, RN, PhD, CON(c), University of Ottawa, Ottawa, ON; Katherine Kim, PhD, MPH, MBA, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA; Jill Joseph, MD, PhD, MPH, University of California, Davis, Betty Irene Moore School of Nursing, Sacramento, CA**

Patients receiving outpatient chemotherapy for cancer treatment report multiple side effects as well as emotional distress. Improving symptoms not only improves the patient experience but also may be cost effective by averting progression of symptoms that can become life threatening. Nurse-led care coordination (CC) which supports patients across care settings, has demonstrated improved patient experiences and health care utilization in populations with various chronic conditions. Such a model has the potential to reduce costs and improve quality yet has had little adoption in cancer care. The purpose of this secondary analysis was to describe the role of nurses in a technology-enabled CC intervention for patients undergoing chemotherapy treatment, perception of their role, use of deci-

sion aids, and the role of technology in facilitating CC. Sixty patients were randomized to receive remote telephone support vs. technology-enhanced CC. Participants received telephone nurse care coordinator (RN-CC) every two weeks for up to six months aiming to improve quality of care, improve patient experiences, and reduce unnecessary costs. To assess and triage side effects and provide symptom support, nurses used the pan-Canadian Oncology Symptom Triage and Remote Support (COSTaRS) practice guides, 13 evidence-based symptom guidelines, designed to complement nurses' critical thinking for outpatient telephone support during cancer treatment. A mixed methods longitudinal descriptive secondary analysis design was used. Electronic medical records were analyzed to describe the CC role. Descriptive statistics calculated frequency of contact, duration of CC, and reason for termination of CC. Domains of professional nursing practice were reported as type and frequency of intervention and specific patient-reported symptoms. Workload activities were arranged as direct versus indirect and measured in time. Individual interviews provided qualitative analysis of perception of the RN-CC role. Findings from this study elucidate efficient and inefficient use of RN-CC in cancer care that has not previously been reported. To categorize and examine RN-CC functions aids in construction of an economical and quality model of care, engaging nurses to practice at the highest level of preparation while contributing to better patient outcomes. Use of evidence-based decision aids guide nurses in facilitating patient-initiated self-care strategies during chemotherapy treatment. Future studies are needed to identify high-risk populations, timing, frequency, and duration of RN-CC to maximize the value and impact.

#### IS-27

**USING A COMMUNITY ADVISORY BOARD TO INFORM DEVELOPMENT OF A SERIOUS GAME FOR MANAGING CINV IN OLDER ADULTS WITH CANCER.** Patricia Geddie, PhD, CNS, AOCNS®, Orlando Health, Orlando, FL; Victoria Loerzel, PhD, RN, OCN®, University of Central Florida, Orlando, FL; John Clochesy, PhD, RN, University of South Florida, Tampa, FL; Anju Chackungal, BSN student, University of Central Florida, Orlando, FL

Older adults are at high risk for cancer-related adverse events such as Chemotherapy-induced nausea and vomiting (CINV). CINV may lead to progressive side effects including dehydration, fluid and electrolyte imbalances, weakness, dizziness, low blood pressure and falls. Failure to manage CINV may lead to unplanned hospital and emergency department admissions. The literature shows that older adults tend to accept side effects as inevitable and undermanage treatment-related side effects such as CINV. Older adults are also overwhelmed by the education given to them prior to treatment. New and age appropriate interventions to encourage self-management of treatment-related side effects are needed for this population. The purpose of this presentation is to describe the use of a community advisory board (CAB) consisting of older adults with cancer, their caregiver and oncology nurses to develop a technology-based intervention (Serious Game) to engage and prepare older adults to self-manage CINV at home. Three focus groups were used to gain insight on the experience of CINV from different viewpoints in order to develop a realistic and age-appropriate intervention. Qualitative content analysis was used to analyze focus group transcripts. Multiple focus groups with CAB members (N=14) provided the foundation for building realistic scenarios and self-management choices for the game and allowed for clarification and validation of identified themes in order to tailor the intervention to the older adult. It also supported the creation of a consistent and engaging experience that was representative of older adult's experiences with managing CINV at home. Feedback from participants indicated

that they enjoyed the experience of creating an intervention for their peers and helping future patients to better manage their CINV. Using the CAB allowed the researchers to develop an intervention specifically for older adults based on their experience and representative of their beliefs about managing CINV at home. Nurses should recognize the limitations to a one-size fits all approach to patient education. Tailoring patient education to the needs of different populations may improve side effect self-management and reduce negative outcomes. Innovation for this project is demonstrated by developing a Serious Game to address self-management of CINV for older adults and using their personal experiences to inform the intervention and tailor it specifically for this high risk population.

#### IS-28

**MEN AND CANCER: A META-SYNTHESIS.** Lisa Nemchek, RN, BSN, University of Connecticut, Storrs, CT

The purpose of this meta-synthesis was to focus on the emotions and feelings of men living with cancer. The second goal was to identify strategies and interventions to support and encourage men to reach their optimal level of health. According to the American Cancer Society, there will be over 841,000 new male cancer cases for 2016 with over 314,000 deaths. As healthcare professionals and caring people, we want to support men in reaching their optimal physical and psychological state of health while living with cancer. Studies show that men generally are diagnosed with cancer at later stages than women and in certain cancer diagnosis have a higher mortality rate. A meta-synthesis was conducted using the meta-synthesis approach of Norblit and Hare. CINHALL, PUBMED, and ProQuest databases were reviewed for qualitative research that targeted men and cancer. Of the 30 studies reviewed, 5 met the inclusion and exclusion criteria. The three overarching themes were: 1) Go with the flow; 2) Play the hand I'm dealt; 3) Cover up the suffering. Knowledge about the concerns from men regarding living with cancer as well as the need to identify strategies to encourage seeking support requires further research. Presumptions that men do not need or want emotional support have been shown to be untrue according to the information in the studies presented. It is imperative that healthcare professionals learn methods unique to men to establish caring relationships and support systems.

#### IS-29

**EFFECTS OF ACUPUNCTURE ON CHANGES IN BODY COMPOSITION IN GASTROINTESTINAL CANCER PATIENTS WITH CACHEXIA.** Saunjoo Yoon, PhD, RN, University of Florida, Gainesville, FL; Oliver Grundmann, PhD, University of Florida, Gainesville, FL; Thomas George, MD, University of Florida, Gainesville, FL; Joseph Williams, DOM, AP, Sunshine Integrative Health, Gainesville, FL; Lucio Gordan, MD, Florida Cancer Specialist Institute, Gainesville, FL

Patients with gastrointestinal (GI) cancer frequently develop cachexia, which may worsen overall functioning, quality of life (QoL) and treatment outcomes. Muscle wasting coupled with unintentional weight loss is a major problem. We hypothesize that tailored acupuncture may provide positive impact on body composition associated with cancer metabolism and the chemotherapy. 1. To investigate impact of a tailored acupuncture intervention to manage cachexia on body composition changes and 2. To examine the association between weight changes and body composition changes in intervention group compared to the control group of GI cancer patients with cachexia. The study is a two-arm, single blind, randomized controlled trial designed to examine the effect of an acupuncture intervention on appetite in GI cancer patients with cachexia. Patients with cancers of the GI tract who were undergoing chemotherapy were randomly assigned into one of two acupuncture groups to



receive 8 weekly intervention sessions based on a mechanism-based acupuncture protocol. Weight and body composition were evaluated prior to each acupuncture intervention. Bioelectrical impedance analysis (BIA: Impedimed™ SFB7) was used to measure FFM, TBW, intracellular water (ICW), extracellular water (ECW) and PA. Blood samples were collected to evaluate the cytokines, C-reactive protein (CRP), pre-albumin, and lactate dehydrogenase (LDH) on weeks 0, 4, and 8. A total of 30 patients (15 completers in each group) completed the study. Patients in the control group lost on average 2.2 lbs while the intervention group remained stable gaining 0.7 lbs ( $p > 0.05$ ). The intervention group had significantly higher FFM ( $p = 0.03$ ), lower ICW ( $p = 0.009$ ), and higher TBW ( $p = 0.03$ ) at the end of the study. LDH and pre-albumin increased significantly ( $p = 0.04$ ) within the control group but remained unchanged within the intervention group while CRP was not different within and between the groups. Increased LDH activity is an indicator of increased muscle activity which relates to reduced FFM in the control group. Weight loss due to cachexia was halted in the intervention group while the control group lost weight. In contrast, the PA as an overall indicator of health status did not increase in the intervention group while it was significantly decreased in control group as expected pointing to a more differentiated outcome. Results indicate the positive trends on impact of tailored acupuncture intervention on cancer cachexia.

### IS-30

**TRAJECTORIES OF AROMATASE INHIBITOR-ASSOCIATED MUSCULOSKELETAL SYMPTOMS (AIAMS) FOR BREAST CANCER: 18-MONTH FOLLOW-UP.** Yehui Zhu, RN, BSN, MSN, University of Pittsburgh, Pittsburgh, PA; Susan Sereika, PhD, University of Pittsburgh School of Nursing, Pittsburgh, PA; John Merriman, PhD, RN, AOCNS®, University of Pittsburgh School of Nursing, Pittsburgh, PA; Catherine Bender, PhD, RN, FAAN, University of Pittsburgh School of Nursing, Pittsburgh, PA

Third-generation aromatase inhibitor (AI) therapy has clear survival benefits for postmenopausal women with early-

stage breast cancer. However, AI-associated musculoskeletal symptoms (AIAMS), including joint pain and muscle stiffness, are the most commonly reported (40%–81%) and distressful sequelae, with detrimental effects on adherence and quality of life. It is important to identify women who are at risk for more severe AIAMS and women who are protected from these symptoms. Therefore, the aim of this secondary analysis is to identify distinct subgroups of trajectories of AIAMS in the first 18 months of AI therapy. Using a prospective design, postmenopausal women diagnosed with hormone-receptor positive early-stage breast cancer and prescribed anastrozole with/without chemotherapy were assessed for AIAMS at pre-therapy, and 6, 12, and 18 months after therapy initiation. The degree of bother for AIAMS in the past 4 weeks was assessed using the musculoskeletal subscale (general aches and pains, joint pain, and muscle stiffness) of the Breast Cancer Prevention Trial Symptom Checklist. Group-based trajectory modeling was conducted using SAS to identify latent classes of trajectories of the symptom. Women ( $N = 365$ ) were on average 61.1 years of age, Caucasian (96.2%), married/partnered (67.2%), and well-educated (14.74 years). Three distinct trajectory sub-groups were identified for degree of bother for joint pain: constant no (17.3%), mild initial with quadratic increase (62.9%), and moderate initial with linear increase (19.8%). Four distinct trajectory sub-groups were identified for degree of bother for muscle stiffness: constant no (13.1%), constant mild (45.7%), no initial with quadratic increase (26.8%), and moderate initial with quadratic increase (14.4%). Three distinct trajectory sub-groups were identified for degree of bother for general aches and pains: constant no (12.1%), mild initial with linear increase (65.6%), and moderate initial with linear increase (22.3%). The results reveal that a considerable proportion of women who receive AI therapy experienced mild to moderate initial joint pain and muscle stiffness with either linear or quadratic increase over 18 months. Future efforts should focus on identifying predictors of AIAMS trajectory subgroup membership to aid in the early identification of women who are at greater risk for this distressful symptom. This is the first study to describe latent trajectories of AIAMS for breast cancer survivors over the first 18 months of systemic therapy.